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CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

Vol. I. SACRAMENTO, JUNE, 1905. No. 1

STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, Ph.D., *Director* ..... University of California, Berkeley

The Monthly Bulletin will present in each number a synopsis of the important results developed by tabulating the statistics of births, marriages, and deaths, especially the latter. The Bulletin is the official means of communication between the Secretary of the State Board of Health and County and City Health Officers, as well as between the State Registrar and Local Registrars and Subregistrars, and will present from time to time matter of interest to these officials. For the benefit of the general public, reports will also be given of food analyses made in the State Hygienic Laboratory at Berkeley.

VITAL STATISTICS FOR JUNE.

It was hardly expected that the registration of vital statistics under the new law would be begun generally before July 1, but returns of varying completeness were received from some counties even for June. The data on the certificates have been tabulated and the main results are now presented without special comment, as the numbers are too small for positive conclusions to be drawn.

Births.—Returns from eight counties, three fifths being from two counties, show a total of 91 living births registered in June, of which 46 were male and 45 female. All except a Chinese girl and a Japanese boy belonged to the white or Caucasian race. The parent nativity of the 89 white children was as follows: both parents born in California or one born here and the other elsewhere in the United States, 41; other native or unknown, 23; one born in California and the other in a foreign country, 5; and other mixed or foreign, 20. Stated proportionally, 461 of each 1,000 were of pure California or mixed California and native parentage, 258 of other native parentage, 56 of mixed California and foreign parentage, and 225 of other foreign parentage. Altogether

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51.7 per cent, or over one half, of the white children had one or b parents born in the Golden State.

Marriages.—A total of 267 marriages were registered in June fourteen counties, three fourths being in four counties. In 199 ca or 74.6 per cent of all, the marriage performed was the first for e party to it, both groom and bride being single. In 24 instances groom was single but not the bride, in 22 the bride was single but the groom, and in 22 it was the second or third marriage of both part Only one remarriage was reported. Of the grooms, 223 or 83.5 per c were single, 25 or 9.4 per cent were widowed, and 19 or 7.1 per c were divorced, while of the brides the single were 221 or 82.8 per c of all, the widowed 32 or 12.0 per cent, and the divorced 14 or 5.2 cent. More brides than grooms reported themselves as widowed, a on the other hand more grooms than brides stated that they w divorced.

Two marriages of negroes were registered. Of the 265 marria of whites, 144 or 54.3 per cent were unions between Californians between Californians and other natives, 54 or 20.4 per cent betw other natives of the United States, 23 or 8.7 per cent between Cali nians and foreigners, and 44 or 16.6 per cent between other nati and foreign-born whites. In altogether 167 cases, or five eighths (6 per cent) of all marriages of whites, one or both parties were nat Californians.

Deaths.—The tabulation of mortality statistics by the system to used henceforth is omitted for June because the great bulk of returns of deaths were on old forms not giving the necessary data.

Twenty-one reports, representing a population of 911,300, sho mortality of 1,060, and a death-rate for the month of 1.16 per thousa or an annual rate of 13.96 per thousand. In the public instituti with a population of 9,231, there were 48 deaths—a monthly death- of 5.20 per thousand, or an annual rate of 62.40 per thousand.

The causes of deaths were as follows: Tuberculosis, 170; H Disease, 151; Cancer, 67; Pneumonia, 64; Stomach Diseases, Diarrhœa and Dysentery, 24; Typhoid Fever, 17; Diphtheria, Whooping-cough, 10; Cerebro-spinal Fever, 10; Alcoholism, 8; B chitis, 8; Influenza, 4; Cholera Infantum, 4; Measles, 2; Congestio the Lungs, 2; Erysipelas, 2; Scarlatina, 1; other causes, 445.

Distributed proportionally, the deaths from each cause reported 10,000 from all causes were as follows: Tuberculosis, 1,604; H Disease, 1,424; Cancer, 632; Pneumonia, 604; Stomach Diseases, Diarrhœa and Dysentery, 226; Typhoid Fever, 160; Diphtheria, Whooping-cough, 94; Cerebro-spinal Fever, 94; Alcoholism, 76; B chitis, 76; Influenza, 38; Cholera Infantum, 38; Measles, 19; Co tion of the Lungs, 19; Erysipelas, 19; Scarlatina, 9; other causes, 4

HEALTH SUGGESTIONS.

The attention of the Health Officers of the State is called t danger of disease being spread by means of water. It is the recog urce of dissemination the world over for certain diseases, no olera and typhoid fever. There is no case of either of these dis *what came from a preceding case through the excreta fro*

human body. The disease germs in this excreta live a certain length of time in the water, and a person using any in which they exist, for either drinking or washing, is in danger of contracting the disease. That all do not so contract it simply shows the resisting power of their systems. It is indirect violation of the State law to in any way pollute the streams furnishing water for domestic purposes. This applies to towns as well as individuals, and it is your duty to watch the water supply of your jurisdiction and keep it pure. Towns sewering into such streams or lakes should be at once notified that they must take steps to secure other means of disposing of their sewage. Corrals and closets of ranches should be moved back from the stream a reasonable distance, and campers should be notified that they must not use the stream in which to wash clothing or deposit the refuse and excreta of their camp. All camping should be prohibited on the banks of streams which directly flow into a reservoir supplying water for domestic purposes, or immediately above the intake of a water supply on a stream, as many cases of typhoid fever have been traced to this source. Typhoid fever is an entirely preventable disease and its existence is a crime against the inhabitants of a State, so many of whom die from it each year. As soon as the people learn that the drinking of dilute sewage is the great cause of this disease and insist that those above them keep from polluting the water and in turn exercise the same care themselves, we shall have taken a long step toward stamping it out.

A representative of the State Board has visited many of the cities and towns which are violating the law against polluting the streams, and has shown them the means by which it can be avoided. Several are acting on the suggestions made and there is no doubt but that in the near future a great improvement will be seen. During a recent tour of inspection, a short distance above a city which pumps its water directly from a stream, a man was seen throwing a load of manure into the water. This, irritating and foul as it was, was not as bad as the acts of nearby towns which discharge all their sewage into the same stream. There is not a city or town in the State that is befouling and polluting the streams but what can, with moderate expense, install a system of sewage destruction. In the saving of life and promoting good health this would be a paying investment.

STATE HYGIENIC LABORATORY.

In accordance with an Act of the last Legislature a State Hygienic Laboratory has been established at the University of California at Berkeley, under the control of the State Board of Health. The work of the laboratory is designed to meet the needs of district health officers, who do not have access to municipal laboratories. The limited funds provided will necessarily restrict the work, but it will be possible at present to do routine diagnostic work on such diseases as tuberculosis, diphtheria, anthrax and typhoid fever, together with the examination of water suspected of sewage pollution.

For the present the privileges of the laboratory will be extended to official medical and veterinary health officers. Circulars giving further details of the work that can be done are in preparation. These will be mailed to all such officers known to the State Board of Health.

Births.—Returns for July from thirty-four counties, including thirteen freeholders' charter cities, give a total of 579 living births. All were white children, except 7 negroes, 2 Chinese, and 3 Japanese. The total number of males was 290 as compared with 289 females, but among the white children alone the boys numbered 288 and the girls only 279.

There were 10 plural births, each being a case of twins. Two children were the twelfth born to their respective mothers, 3 the eleventh, and 1 the tenth. On the other hand, 208 or 35.9 per cent were first-born children, 120 or 20.7 per cent second children, 77 or 13.3 per cent third children, 41 or 7.1 per cent fourth children, and only 88 or 15.2 per cent the fifth or over born, the information not being stated for 45 or 7.8 per cent of all. By taking successive totals, it appears that while more than one third (35.9 per cent) were first-born, about five ninths (56.6 per cent) were second children or less, seven tenths (69.9 per cent) were third children or less, and over three fourths (77.0 per cent) were no more than the fourth born to their mothers.

Of all the children born to the 579 mothers having births in July the number living at the time of registration was as follows: none, 13 or 2.3 per cent; one, 201 or 34.7 per cent; two, 127 or 21.9 per cent; three, 70 or 12.1 per cent; four, 34 or 5.9 per cent; five or more, 62 or 10.7 per cent; and not stated, 72 or 12.4 per cent.

Of the 567 white children, 381 or 77.2 per cent had both parents native (or unknown) and 186 or 32.8 per cent had one or both parents foreign born. The 381 of native parentage included 244, or 43.0 per cent of the total, having one or both parents born in California and 137, or 24.2 per cent of all, having both parents born elsewhere in the United States. The 186 wholly or partly of foreign parentage comprised 57, or 10.1 per cent of all, with one parent born in California and 129, or 22.7 per cent of the total, with both parents born elsewhere. Altogether 301 or 53.1 per cent of the white children had one or both parents born in the Golden State. That is, considerably over half were wholly or partly of California parentage.

The nativity of merely the mothers of the 567 white children was as follows: California, 249 or 43.9 per cent; other states, 211 or 37.2 per cent; and foreign countries, 107 or 18.9 per cent. More than two fifths of the white mothers were native Californians.

By age periods, the white mothers were distributed thus: under 25 years, 210; 25 to 34 years, 257; 35 to 44 years, 73; 45 years and over, 1; and age unknown, 26. Or, stated proportionally, of each 1,000 there were 370 under 25 years, 453 from 25 to 34 years, 129 from 35 to 44 years, 2 at least 45 years of age, and 46 age unknown. Over four ninths (45.3 per cent) of the white mothers were from 25 to 34 years of age and three eighths (37.0 per cent) were under 25 years, so that altogether over four fifths (82.3 per cent) were less than 35 years of age.

Marriages.—For July, altogether 547 marriages were reported from thirty-three counties. Except for 7 marriages of negroes, the unions were all between persons of the white or Caucasian race. In 396 cases, or nearly three fourths (72.4 per cent) of all, the marriage performed
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the grooms, 463 or 84.7 per cent (about five sixths) were single, 51 or 9.3 per cent were widowed, and 33 or 6.0 per cent were divorced, while of the brides the single were 444 or 81.2 per cent (about four fifths of all), the widowed 64 or 11.7 per cent, and the divorced 39 or 7.1 per cent. Somewhat more grooms than brides had not been previously married, the difference being made up mainly in the greater number of widows than of widowers remarrying.

Of the 540 marriages of whites, 260 or 48.2 per cent were unions between Californians or between Californians and other natives, 115 or 21.3 per cent were between persons born elsewhere in the United States, 44 or 8.1 per cent were between Californians and foreigners, and 121 or 22.4 per cent were between other natives and foreign-born whites. In altogether 304 cases, or about five ninths (56.3 per cent) of all marriages of whites, one or both parties were native Californians.

The nativity of the white brides alone was as follows: California, 254 or 47.0 per cent; other states (including 5 of unknown nativity), 186 or 34.5 per cent; and foreign countries, 100 or 18.5 per cent. Nearly half were born in the Golden State.

The white brides were distributed thus by age periods: under 25 years, 327; 25 to 34 years, 137; 35 to 44 years, 53; and 45 years and over (including 2 of age unknown), 23. Or, the proportion per 1,000 of all ages was as follows: under 25 years, 605; 25 to 34 years, 254; 35 to 44 years, 98; and 45 years and over, 43. Three fifths (60.5 per cent) of all were under 25 years of age and one fourth (25.4 per cent) were from 25 to 34 years, so that altogether five sixths (85.9 per cent) were less than 35 years old.

Deaths.—Returns for July from forty counties, including fifty-six cities and incorporated towns, give a total of 1,211 deaths, exclusive of still-births not tabulated. Reports that no deaths occurred in the month were received from the Registrars of two mountain counties and seventeen cities and towns. The calculation of a death rate is omitted because the returns from some registration districts cover only part of the month.

Causes of Death.—The following table shows the number and proportion of deaths from the diseases included under each of the main headings of the International Classification:

Class.	Number.	Proportion.
ALL CAUSES	1,211	10,000
General Diseases	297	2,453
Epidemic diseases	67	553
Other general diseases	230	1,900
Nervous System	144	1,189
Circulatory System	161	1,330
Respiratory System	91	751
Digestive System	99	818
Genito-urinary System	63	520
Childbirth	13	107
Skin Diseases	1	8
Locomotor System	1	8
Malformations	7	58
Early Infancy	36	297
Old Age	53	438
Violence	210	1,734
Ill-defined Diseases	35	289

About one fifth of the deaths were caused by general diseases *than epidemic diseases*. The prominence of this class is explai

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About one fifth of the deaths were caused by general diseases other than epidemic diseases. The prominence of this class is explained by

the fact that it includes such diseases as tuberculosis and cancer. The notable proportion of deaths ascribed to violence is accounted for by the explosion on the U. S. S. "Bennington" in San Diego harbor. Next to general diseases and violence, the main causes of death in California were diseases of the circulatory system, of the nervous system, of the digestive system, of the respiratory system, and of the genito-urinary system, in the order named.

he ta ble below gives similarly the number and proportion of deaths from the leading specific diseases in the State:

Disease.	Number.	Proportion.
ALL CAUSES	1,211	10,000
Tuberculosis	151	1,247
Heart Disease	106	875
Burns and Scalds	78	644
Pneumonia	59	487
Bright's Disease	53	438
Old Age	53	438
Apoplexy	45	371
Cancer	44	363
Diarrhea and Enteritis	43	355
Paralysis	34	281
Typhoid Fever	26	215
Meningitis	25	206
All others	494	4,080

Nearly all the deaths from burns and scalds resulted from the "Bennington" disaster. One eighth of all deaths in California were from tuberculosis, but many of the persons thus dying were only recent residents. Over one death in twelve was due to heart disease; about one in twenty to pneumonia, Bright's disease, or old age; about one in thirty to apoplexy, cancer, diarrhea and enteritis, or paralysis; and about one in fifty to typhoid fever or meningitis.

PUBLIC HEALTH ASSOCIATION.

In October the California Public Health Association will hold its semi-annual meeting in San Francisco. This conference was organized and is maintained for the purpose of bringing together for consultation and discussion the health officers of the State and others interested in sanitary affairs. The past meetings have been of much interest and many valuable papers have been read, and the discussions have shown a keen interest taken by those present and a deep insight into the needs of the State. Already the good results are becoming manifest in the general awakening of the health departments of the State, and through them of the people. The State Board of Health is in constant receipt of letters from the authorities of different municipalities asking for information or aid in installing a sewage system or methods of scientifically destroying the sewage.

Sanitation and saving life by preventing disease are beginning to be considered among the functions of government, and the time will come when it will be held as culpable to sacrifice a person's life or health by exposure to a preventable disease, either maliciously or carelessly, as it is to expose them to danger from any other cause. That time will come only when the people are educated to the dangers to which they are exposed and the methods of avoiding them. This education must begin with the health officer. Such officers are looked upon as the *leaders in sanitary matters*, and upon them largely depends the enforce*ment of the law. To do this* effectively they must be earnest, well-

informed, and firm, and in no way can they attain these qualities better than at these conferences. Counties and municipalities should insist that their health officers attend these meetings, so that a uniform system of sanitary work may be carried on throughout the State. The necessary expenses of such a trip should be borne by the county or town represented. Such an expenditure will yield better returns than any other it is possible to make. No health officer, however, should allow the expense to keep him away. The expense of the meeting is borne by the State, so there are no dues. By making these meetings large and enthusiastic, a sentiment can be developed throughout the State that will recognize the justice of this expenditure.

In the August Bulletin will be published the program and full particulars of the meeting.

DISINFECTION OF SCHOOLS.

Reports for the past few months show that diphtheria is quite extensive throughout the State. Other contagious diseases are also more or less prevalent, and many children have died during the past year from these diseases—lives sacrificed to carelessness and ignorance. There are constantly cases of mild diphtheria—so mild as to be unrecognized except by a bacteriological examination—going to school, and many of these deaths have been traced to them. These mild cases, however, are as contagious as the more severe, and cases resulting from them are as apt to be fatal. If all cases could be discovered and excluded before they had contaminated the school the danger would be less, but that can not be done until we have pupils examined daily. We must therefore minimize the danger by disinfecting the schoolrooms. This should be done at least every month, and if there are reported cases, oftener. The expense would not be great compared with the good results. Sulphur or formaldehyde could be used, but always in sufficient quantities to kill the germs. If sulphur is used, burn 5 pounds to every 1,000 cubic feet; or if formalin, 16 ounces of the 40% solution used in any of the approved methods, to the same space, in all cases keeping the room closed for twelve hours. We strongly urge the health and school authorities to work in harmony in this matter and protect the health and lives of the children.

DUST DANGERS.

The dust of the city streets consists of the disintegrated particles of its surface, soil brought upon it in various ways, dried and pulverized excreta of animals, sweepings from stores, saloons, hospitals, etc., and carries a large amount of the discharges from human lungs, throats, and nostrils, many and perhaps most of them diseased. The dust is filthy in the extreme, and in it lurks great danger to health. There is no doubt but what many of the cases of contagious diseases, the source of which can not be traced, may justly be laid to dust. Oftentimes children with mild cases of diphtheria are on the streets and expectorate freely the discharges from their diseased throats. In a short time this discharge is dried and flying through the air, to be taken up in any one of the many possible ways. There can be no doubt of the danger and needs of prevention, but the latter is beset with difficulties. Still, *much can be done* in this direction. While expectorating should be

prohibited on the sidewalks, it can not be entirely prevented on the streets. All possible care should be taken to keep filth from our streets, but it is impossible to entirely do so, and our efforts must largely be directed to its removal with the least exposure, and to avoiding breathing or eating the dust. On smooth-surfaced streets there are machines which suck up the dust without causing it to fly in the air, or it can be washed away with a strong stream of water from a hose. Sweeping is impracticable as a rule, for if the street is not wet the air is filled with dust, and if it is wet enough to prevent the dust flying it makes a mud, which sticks to the surface and dries in a few minutes and but little is gained. Most streets are not smooth, and in any case, we will have much dust and must look to avoiding it when possible. All breathing should be through the nose, and this especially should be taught to children. They should be made to understand the dangers of mouth breathing and given the reasons for breathing through the nose.

Perhaps the greatest danger from dust is through the exposure of foods in and in front of stores. Berries and other fruit are usually exposed where they will catch the greatest amount of dust. These are often eaten without washing, and even if washed the filth is not entirely removed. Groceries of different kinds are frequently exposed, and the counters of bakeries are covered with pies and cakes—and dust.

There is no law to prohibit this exposure, nor is it necessary, for the people have a stronger power than the law—to purchase nothing that is needlessly exposed to contamination from dust.

Since the last issue of the Bulletin, a representative of the State Board has inspected one of the important rivers of the State, a river which furnishes drinking water for towns and also water for natural ice. The conditions of this river and its tributaries were far from sanitary. Individuals and towns are allowing their sewage to flow into it; cattle corrals are on the banks, so that the drainage is directly into the stream; hog yards are extended from bank to bank on the small tributaries, so that the swine can be easily cleansed, and dead stock has been allowed to remain uncared for in the water. The people using the water, and especially the ice companies, are desirous of having the conditions improved and, as a rule, are offering the Board every assistance in their power. Notice has been served upon the violators of the law, and we sincerely hope that this great danger to the public health will soon be eliminated.

The Bulletin acknowledges the receipt of a copy of "Practical Hygiene for Home and School," by George W. Newton of the Iowa Normal School. The author has successfully endeavored to put before his readers a clear, concise statement of scientific truths relating to hygiene. The language is clear, and not so scientific but that the child can understand it. The book is filled with good suggestions and, what is perhaps as meritorious, contains little that is objectionable. If the twenty-six pages devoted to alcohol had been divided and half given to the study of "Air," with instructions as to proper breathing and the dangers of living where there is not an ample supply, there would have *been a distinct gain.* The book, however, is a valuable addition to our *school literature on hygiene,* and is a long step in the right direction.

STATE HYGIENIC LABORATORY.

As stated in a previous issue of the Bulletin, the laboratory is prepared to do work for health officers in districts not having access to laboratory facilities. Containers suitable for collecting sputum, blood from suspected typhoid cases, and material from suspected diphtheritic patients, and ice chests provided with a sterilized container for collecting samples of water suspected of being polluted by sewage, will be sent upon application. Directions for the collection of material and shipment will accompany each container. The value of results of the work in the laboratory is directly dependent upon the care with which the directions are followed in collecting and shipping the pathological material.

In addition to work upon material from suspected cases of diseases in man enumerated above, the laboratory is prepared to make examinations for county or municipal veterinarians who do not have access to local laboratories.

At present the laboratory can only, as a general practice, undertake examinations of material from suspected cases of certain animal diseases, under the conditions stated below. Correspondence is highly desirable before other material is submitted.

Anthrax.—A suitable container, with directions for use, will be sent on application. In cases when the container is not at hand, an ear of the dead animal may be sent. Cut it off close to the head, place it in a Mason fruit-jar, which in turn should be packed in a box with sawdust.

Tuberculosis.—Occasions for examination of material from the diseases in cattle will arise but rarely. Circumstances sometimes make desirable a positive diagnosis by bacteriological examination of lesions. Material should be selected with a view of representing a broad variety of lesions. It may be placed in a tin can with a tight cover. This, in turn, should be packed in a box of ice and sawdust, for shipment by express.

Actinomycosis.—A mailing case, suitable for transporting pus from the tumor, will be sent on application. In the absence of this, pus may be shipped by express in a tightly corked bottle.

Express charges must in all cases be prepaid, as the laboratory has no appropriation for this purpose.

A. R. WARD,
Director State Hygienic Laboratory.

ON THE OCCURRENCE OF HYDROCYANIC ACID IN JOHNSON-GRASS.

On the 26th of July last, word was received at the University of California that cattle were dying at Los Banos. Owing to the nature of the symptoms it was decided to make a chemical analysis of Johnson-grass (*Sorghum halepense*), which appeared to be the cause of the deaths. The result of the chemical analyses showed most conclusively that the grass contained hydrocyanic acid in appreciable quantities. A request was then made to the owner of the cattle for another specimen of the Johnson-grass, and also of one of a rank-growing grass at *the same stage* of growth as the Johnson-grass, but which did not kill

the cattle. Upon the receipt of the specimens at the laboratory, chemical examinations were made, with the result that hydrocyanic acid was found in the fresh Johnson-grass to the extent of five hundredths of one per cent; and to be entirely absent from the other specimen—barnyard-grass (*Panicum crus-galli*). This is the first time in California (to our knowledge) that hydrocyanic acid has been found in Johnson-grass.

In Bulletin No. 77, issued in January, 1903, by the Agricultural Experiment Station of the University of Nebraska, are given the results of a similar investigation made there with reference to common sorghum and kaffir corn, both of which are relatives of the Johnson-grass. The following paragraph, referring to antidotes, is taken from the bulletin in question:

"Prussic acid has a tendency to unite with certain carbohydrates, forming additional products. These compounds are much less poisonous than the free acid. Both glucose and milk sugar unite with prussic acid to some extent even in dilute solutions. Aside from this action, these carbohydrates retard the action of enzym in liberating prussic acid. These facts suggest that, in case the animal is not in such a condition as to render medical treatment out of the question, the following may be effective: A strong solution of glucose, which nearly every farmer has on hand in the form of 'corn syrup' or molasses, may be administered. Large quantities of milk have in a number of instances been administered, apparently with good effect. In all cases the animal should have as much fresh air as possible."

Further Analyses of so-called Evaporated Creams.

Lab No.	Brand.	Manufacturer.	Water.	Casein, etc.	Fat.	Lactose.	Mineral Matter.
586	Pet brand evap. cream	Helvetia Milk Cond'g Co.	70.47	7.57	9.90	10.42	1.64
587	Red Ribbon evap. cream	Elmira Con. Milk Co.	78.81	5.87	5.70	8.33	1.29
588	Silver Cow evap. cream	St Charles Milk Cond'g Co.	70.73	7.42	9.30	10.93	1.62
593	Alpine cream	Alpine Evap. Cream Co.	75.13	6.72	7.20	9.46	1.49
594	Pioneer brand evap. cream	Borden Con. Milk Co.	70.45	7.27	10.20	10.55	1.53

As previously pointed out in last month's Bulletin, the labels of these so-called evaporated creams are entirely at variance with their food values. To say the least, they are misleading to the laity.

M. E. JAFFA.

FOOD LABORATORY, UNIVERSITY OF CALIFORNIA.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

Vol. I. SACRAMENTO, AUGUST, 1905. No. 3.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director* ..... University of California, Berkeley

VITAL STATISTICS FOR AUGUST.

Summary.—A total of 1,134 living births were reported for August from forty-five counties, including fourteen freeholders' charter cities. There were 11 sets of twins, and 10 children were at least the tenth born to their respective mothers.

Altogether 1,067 marriages were reported for August from forty counties. In 809 cases, or 75.8 per cent of all, the marriage performed was the first for each party, both groom and bride being single. In 110 instances it was the first marriage of the groom, but not of the bride, and in 76 it was the first of the bride but not of the groom, while in 72 cases, or 6.8 per cent of all, both parties had been married before. Somewhat more grooms than brides had not been previously married, 86.1 per cent of the grooms, against 82.9 per cent of the brides, being single.

A total of 1,844 deaths, exclusive of stillbirths not tabulated, were reported for August from forty-nine of the fifty-seven counties in the State, including seventy-three cities and incorporated towns. Reports that no deaths occurred in the month were received from one County and twelve City or Town Registrars. The principal causes of death were general diseases (especially other than epidemic diseases), diseases of the circulatory system, of the nervous system, and violence. About one death in seven was due to tuberculosis, though many such decedents were only recent residents of the State. The next most important specific causes of death in August were heart disease, cancer, apoplexy, and pneumonia.

Causes of Death.—The table below shows the number of deaths from the main classes of diseases reported for California in August and July

respectively. For convenience in comparison, the proportion of deaths from each class per 10,000 from all causes is also shown for both months:

Class.	Number.		Proportion per 10,000.	
	August.	July.	August.	July.
ALL CAUSES	1,844	1,211	10,000	10,000
General Diseases	560	297	3,037	2,453
Epidemic diseases	96	67	521	553
Other general diseases	464	230	2,516	1,900
Nervous System	213	144	1,155	1,189
Circulatory System	223	161	1,209	1,330
Respiratory System	129	91	700	751
Digestive System	182	99	987	818
Genito-urinary System	107	63	580	520
Childbirth	10	13	54	107
Skin Diseases	10	1	54	8
Locomotor System	3	1	16	8
Malformations	11	7	60	58
Early Infancy	74	36	401	297
Old Age	77	53	418	438
Violence	194	210	1,052	1,734
Ill-defined Diseases	51	35	277	289

Most of the deaths each month were caused by general diseases other than epidemic diseases, this class including tuberculosis and cancer. Next in order of importance as causes of death are diseases of the circulatory system, of the nervous system, and violence. Following these come diseases of the digestive system, of the respiratory system, and of the genito-urinary system.

The following table gives for August the number of deaths from the leading specific diseases, as well as the proportion per 10,000 from all causes:

Disease.	Number.	Proportion.
ALL CAUSES	1,844	10,000
Tuberculosis	281	1,524
Heart disease	172	933
Cancer	114	618
Apoplexy	90	488
Pneumonia	89	483
Old age	77	418
Bright's disease	75	407
Diarrhea and enteritis	74	401
Congenital debility	44	238
Typhoid fever	43	233
Meningitis	36	195
All others	749	4,062

About one death in seven was due to tuberculosis, and one in eleven to heart disease. One in sixteen was caused by cancer, one in twenty by apoplexy or pneumonia, and one in twenty-five by old age, Bright's disease, or diarrhea and enteritis.

SYNOPSIS OF REGISTRATION LAW.

The main points of interest to the general public in the present law for the registration of vital statistics in California may be summarized as follows:

The County Recorder is the sole Local Registrar for marriages. The Local Registrar of births is the City Health Officer in the few cities *having freeholders' charters*, and the County Recorder everywhere else.

For deaths, the Local Registrar in cities having freeholders' charters is the City Health Officer; in other cities and incorporated towns, the City or Town Clerk, and for the remainder of each county, the County Recorder. When public convenience requires, the County Recorder as Local Registrar may, with the approval of the State Registrar, appoint Subregistrars for designated portions of the county. Registrars are required to furnish without charge a sufficient number of copies of the proper certificate to each person upon whom is imposed the duty of certifying to a birth, marriage, or death. The chief duty of each Local Registrar and Subregistrar, however, is to enforce the vital-statistics law in his registration district.

The law applies particularly to clergymen, physicians, and undertakers. Every priest, minister of the gospel, justice, or judge who performs a marriage in this State, must within three days after the ceremony file with the County Recorder as Local Registrar a certificate properly filled out for the marriage performed by him.

Every physician, midwife, nurse, or other person assisting at a birth in California, must within five days thereafter file a certificate of birth with the Local Registrar, who is the County Recorder, except in the few cities having freeholders' charters, where the City Health Officer so acts. In case the child is not named when the certificate is filed, the Local Registrar will deliver to the person reporting the birth a supplemental blank for report of the given name, which must be filled out by the parents, next of kin, physician, or midwife, and returned as soon as the child shall be named, the name being then added by the Local Registrar to the certificate previously filed with him.

Every undertaker engaged for a funeral is held responsible for obtaining and filing a certificate of death with the Local Registrar or Subregistrar, and securing a burial or removal permit prior to any disposition of the body. The Local Registrar for deaths is the City Health Officer in cities having freeholders' charters, the City or Town Clerk in other cities and incorporated towns, and the County Recorder for the remainder of each county, while Subregistrars may also be appointed for designated portions of counties. Ordinarily the undertaker will obtain the personal and statistical particulars required over the signature (or name) and address of a relative or friend of the deceased, though the information may be given by any person, including the undertaker or physician, qualified to supply the facts. Besides the personal and statistical particulars, there is also the medical certificate of death, under which heading the physician certifies to the length of time the deceased received medical attendance, and also to the date and cause of death, including both the primary and immediate and the contributory causes, if any, and the duration of each. Special information is also required for hospitals, institutions, transients or recent residents. In all cases where death occurs away from the former or usual residence, that residence must be given, together with the length of time at the place of death, and a statement of where the disease was contracted.

It is a misdemeanor for the State Registrar or for any clergyman, physician, undertaker, or other person, to fail, neglect, or refuse to perform any of the duties imposed upon him under the law for the registration of births, marriages, and deaths. It is also a misdemeanor for any Local Registrar, Deputy Registrar, or Subregistrar to neglect or

fail to enforce the provisions of the registration law in his district. At the instance of the State Registrar, the prosecuting attorney or other proper officer of any county or municipality shall forthwith initiate and promptly follow up the necessary court proceedings against parties responsible for alleged violations of the law.

NOTES TO REGISTRARS.

Promptness in Reporting Births.—The experience of registration officials in other states teaches that the longer the period allowed for reporting births, the smaller is the number actually reported. This explains why the California law requires physicians to register births within five days after they take place. Though at that time the child may not yet have been named, all the other personal and statistical particulars called for on the certificate are then known. The information sought can be obtained from the parents at the time of the birth much more conveniently than afterwards, when the physician's visits have become less frequent or have ceased altogether. While the child's name does not of course affect the statistical tabulations, it is needed for the sake of certainty in the legal records of the birth. The name of the child can be reported to the Registrar on a supplemental blank, filled out by the parents or physician as soon as the child shall have been named, and the Registrar will then add the given name to the certificate previously filed, thus making the record of the birth legally complete.

Complete Registration of Marriages.—This will be insured if the County Clerk, when issuing a marriage license, will also hand a blank certificate of marriage to the parties. They should be directed to furnish the personal and statistical particulars required and leave the certificate with the priest, minister, justice, or judge performing the ceremony. He will then have to fill out the remainder of the certificate and file it with the County Recorder (or Registrar) within three days thereafter. The adoption of this arrangement accounts for the excellence of the returns from several counties.

Definite Statements of Causes of Death.—It often happens that Coroners are required to investigate deaths not caused by violence, but merely occurring without medical attendance. In such cases they should make the investigation thorough enough to be able to certify to some definite cause of death, as tuberculosis, cancer, pneumonia, etc. Deaths reported as due merely to "natural causes" have to be tabulated as "unknown," and therefore yield no information of value to the statistician.

Names and Addresses of Subregistrars.—County Recorders (or Registrars) who have not yet reported to the State Registrar all their appointments of Subregistrars are requested to do so now, in order that the names and addresses may be put on the mailing list for the Monthly Bulletin.

Registrar's Accounts for Fees.—These should be presented to the State Registrar for approval quarterly on the special blanks being sent to Local Registrars in the various counties, cities, and towns.

YELLOW FEVER.

The question is often asked if there is any danger of yellow fever in California. The answer to this must be, that there is danger, although it is not great. Yellow fever is spread by a certain species of mosquito, and that mosquito has never been reported in California. If not here now, it might be brought in ships or cars, and so become naturalized, when we would soon have plenty of them. The mosquito is harmless unless it has bitten a person suffering with yellow fever, so, should the mosquito develop here, no bad results would follow unless a case of yellow fever should be imported and the mosquitoes allowed to bite the patient. Our safety consists, first, in preventing the introduction of mosquitoes and destroying all their breeding-places; second, in keeping all cases of yellow fever protected from mosquitoes. Ships and cars from infected ports are fumigated to destroy the mosquitoes, and a close watch kept for any case of the fever. However, every health officer, physician, and citizen has a duty to perform. We know the cause and can control it by united effort, and can take a valuable lesson from the intense suffering endured and great expense entailed by New Orleans during the past summer. The city was not properly sewered or drained, and had 70,000 cisterns all above ground, many of which were open and therefore breeding-places for mosquitoes. It has been an expensive fight, but one fought on scientific grounds, and science is winning out. Had all the citizens and physicians been prompt in reporting cases and accorded the health authorities an active support, the victory would have been more complete. The hiding of cases in this epidemic, as in all epidemics of contagious diseases everywhere, has been the cause of much of the suffering. Some time people will find that health authorities are working for their good.

MOSQUITOES.

The theory of a few years ago that mosquitoes were the chief active agents in the dissemination of malaria and yellow fever has been scientifically proven to be true. This opens up a new and extensive field for sanitary effort—a field that in the past has been almost entirely neglected. Further investigations will undoubtedly show that other diseases are transmitted by insects, and that the mosquito is not the only guilty one.

Insect life has been looked upon merely as an annoyance to existence—something that while capable of making life miserable was to be dreaded only for its annoyance. This is all changed now. While insects are none the less annoying, we know they spread the germs of disease.

There is now a double incentive to destroy them—to rid ourselves of the terrible nuisance, and of the danger of disease. The spread of yellow fever and malaria is not caused by the same kind of mosquito, but by two separate and distinct species—the *Stegomyia* for yellow fever, and the *Anopheles* for malaria. Neither of these mosquitoes is dangerous unless it has recently bitten a person suffering from the disease it carries; but having bitten such a person, the germs develop in the mosquito and its bite will then give that disease. As far as reported the yellow-fever mosquito has never been found in California, but should it be brought here there is no doubt it would adapt itself to conditions and multiply.

The malaria mosquito is found extensively throughout the State, and its destruction should be sought by all communities. All persons suffering from malaria should be protected from mosquitoes in order to prevent their becoming infected and carrying the disease to others. The following directions are from the Public Health Reports[1], and while given for yellow fever, are as applicable to malaria:

The infection of yellow fever is carried by mosquitoes, and by no other means is the infection spread.

Persons take the disease by being bitten by mosquitoes that have previously bitten a yellow-fever patient.

The mosquitoes to become infected must bite a yellow-fever patient during the first three days of his attack. These first three days, therefore, are the most important time for preventing the access of mosquitoes to a fever patient.

It is often difficult to decide during the first three days whether a patient has yellow fever; hence the necessity in threatened communities of placing a mosquito bar immediately around every patient who has fever of any kind, and for three days at least.

Facts about Screening.—1. The netting used should have meshes fine enough to prevent the passage of mosquitoes (at least 18 to 20 meshes to the inch).

2. It is important to screen the windows and doors of the house. It is doubly important to screen the beds of fever patients.

3. Mosquitoes can bite through mosquito nets when any part of the patient's body is in contact with the netting.

4. Frequent examinations should be made to see that there are no torn places in the netting, or that no mosquitoes have found a lodgment inside.

5. The netting should be well tucked in to keep mosquitoes from entering.

6. If mosquitoes are found within the netting they should be killed inside and not merely driven or shaken out.

7. All cases of fever should be promptly reported to the local health officer. Awaiting his arrival they should be covered with a mosquito bar.

Facts Bearing on Mosquito Destruction.—1. Mosquitoes live in the vicinity in which they breed. They do not often fly a long distance.

2. Mosquitoes breed only in water—usually in artificial collections of fresh water.

3. The young mosquito, or wriggler, lives in water at least seven to twelve days.

4. Although the wrigglers live in water, they must come frequently to the surface to breathe.

5. Coal oil on the surface of the water prevents the wrigglers from breathing.

6. Destroy the breeding-places and you will destroy the mosquitoes.

7. Empty the water from all tubs, buckets, cans, flowerpots, and vases once every forty-eight hours.

8. Fill or drain all pools, ditches, unfilled postholes, and the like.

9. Change regularly every day all water needed in chicken-coops, kennels, etc.

10. Treat with coal oil all standing water which can not be screened or drained (1 ounce of oil will cover 15 square feet of surface). The oil does not affect the water for use if the water is drawn from below.

11. Where oil is applied to standing water it must be distributed evenly over the surface.

12. Put fine wire netting over cisterns, wells, and tanks of water in everyday use.

13. Places in which it is undesirable to put oil, such as watering-troughs for stock, lily ponds, and so forth, can be kept free from wrigglers by putting in gold fish or minnows.

14. Clean away all weeds, grass, and bushes about ditches, ponds, and other possible breeding-places, since these afford a hiding place for the mosquitoes.

15. Clean up vacant lots and back yards of all cans, tins, bottles, and rubbish.

16. First do away with, or treat, all places where mosquitoes are known to breed, and then begin to work on places where they might breed.

17. Inspect and treat with coal oil gutters, culverts, ditches, manholes, catching basins, etc., along the roadside. Manhole covers should be screened.

18. Houses should be cleared of mosquitoes by burning 1 pound of insect powder or 2 pounds of sulphur to 1,000 cubic feet of space. The mosquitoes will fall to the floor and should be collected and burned.

19. Success in mosquito destruction depends upon the coöperation of the members of the entire community.

20. While the infection of yellow fever is carried by a single species of mosquito (the *Stegomyia*), to insure its destruction it is necessary to destroy all mosquitoes.

In places liable to yellow fever both individuals and communities have an effective method of protecting themselves, as indicated above. Use the mosquito bar at once over all cases of fever until the danger from yellow fever has passed. Destroy all mosquitoes.

WALTER WYMAN, Surgeon-General.

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[1] *U. S. Public Health and Marine* Hospital Service. Public Health Reports, Vol. XX, *No. 31, pages 1555-1557.* (August 4, 1905.)

NOTIFICATION OF TUBERCULOSIS.

The State Board of Health, in publishing a revised list of reportable diseases, included "tuberculosis of the respiratory tract," believing that the health department of every locality should know where every case of this disease is located. Otherwise they can do little to prevent its spread.

The September number of the California State Journal of Medicine[1] contains the following, which so thoroughly voices our opinion that we reproduce it in full. It should be read by all those suffering with this dread, but preventable, disease, and actively supported by physicians. The italics are ours:

The committee on tuberculosis of the Medical Society of the State of California believes the following represents the most advanced thought upon the subject of notification in pulmonary tuberculosis:

First—Tuberculosis is a disease communicated from one individual to another because of the violation of simple rules of hygiene and sanitation, through either ignorance or willfulness, usually the former.

Second—In order to wage an effective warfare against this disease, the individual suffering from tuberculosis must know that he has the disease, must be instructed as to its nature and as to what measures are necessary to prevent its spread, and must carry them out with care. After removal or death, the apartments previously occupied must be thoroughly cleansed and disinfected.

Third—The supervision of such measures rightfully belongs to the department of health, and in order for this department to have such supervision, it must be able to locate those suffering from the disease, which can only come about by requiring all cases to be reported.

Fourth—The notification of tuberculosis should be especially safeguarded so as not to work unnecessary hardship upon those who are afflicted. Consequently the books containing the record of the names of those suffering from the disease should be open to the inspection of none but the health authorities. This protects not only the patient, but the physician as well, and removes the usual objection urged by physicians against notification. *The purpose of notification is not for quarantine, nor for placarding the house occupied, but simply to insure that proper instructions are given and proper precautions taken.*

Fifth—Special instructions should be printed by the health board. These should be furnished to physicians, who should give them to all patients suffering from tuberculosis. When the physician notifies the department, he should signify whether he will instruct the patient and friends himself as to the methods of preventing the disease, or whether he wishes the department to do this. In this way there would be no meddling with private patients, unless at the physician's request, and consequently there would be no clash between physician and health board. When physicians learn that notification can be carried out without interfering with the liberty of their patients, they feel friendly to the plan. When the public learns that it is done for their protection, and that it entails no hardship, they, too, will take readily to it.

Notification is in harmony with the advanced thought on the prevention of tuberculosis, and will be adopted generally sooner or later, the time depending upon the importance given the subject in the various localities.

F. M. Pottenger.
Jno. C. King.
George L. Cole.
Edward Von Adelung.
George H. Evans.

ANSWER TO REQUEST FOR INFORMATION.

Information has been sought from this office as to the safety of the process of removing, by means of caustic acid, the skin of peaches that were to be canned. It was stated that the California Fruit Canners' Association, at San José, was using this process, and fear expressed that it was deleterious to health. A representative of the State Board of Health visited the cannery and examined the methods used. The fruit is immersed in the hot lye and quickly passed into pure cold water, which is constantly changing, and quickly washes away any alkali. The process is entirely cleanly, the fruit not being handled as it must

[1] California State Journal of Medicine, Vol. III, No. 9, page 294. (September, 1905.)

be when peeled by hand, and we had no hesitation in saying we believed it entirely healthful. However, we took two cans of fruit—one marked No. 38, the other No. 4; one peeled by hand, the other by the lye—and sent them to the State Laboratory for examination. The following is the report:

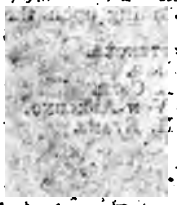
Neither can showed alkaline juice. The acidity of can No. 38 was 0.32 per cent, calculated in terms of sulphuric acid, while can No. 4 was 0.39 per cent. These figures are only very slightly below, if at all below, the acidity of a ripe peach. We have data for the acidity of some ripe peaches which show 0.5 per cent, which is very little higher than that shown in No. 4. There is nothing harmful in any way in these peaches.

AN ACTIVE BOARD OF HEALTH.

A good example of what an active local board of health can do is that at Woodland. Until July last they had had no board of health for a long time, and, as a result, the sanitary laws were disregarded and the conditions bad. Houses were not connected with sewers, alleys were full of filth, and the streets were far from sanitary. A notice from the State Board of Health caused the appointment of a local board that took seriously to their work and appointed a competent health officer. As a result, houses are being connected with the sewer as fast as possible, the alleys and streets are being cleaned, the filthy Chinatown, which is in the center of the city, is to be reconstructed, and diphtheria, which has for a long time been prevalent in a greater or less degree, is disappearing. The citizens appreciate the efforts of the health officers and are giving them a hearty support, with the result that the city is improving vastly in general appearance. All honor to the physicians and citizens who compose the board, and to the health officer, who, by the way, is a clergyman, doing such good work in the cause of public health.

PUBLIC HEALTH ASSOCIATION.

The September Bulletin will contain the program and other particulars of the meeting of the California Public Health Association, to be held in the latter part of October.



CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*.....University of California, Berkeley

VITAL STATISTICS FOR SEPTEMBER.

Summary.—A total of 1,910 living births were reported for September from forty-two counties, including fifteen freeholders' charter cities. Among these cities San Francisco led with 590 births for the month, followed by Los Angeles with 306 and Oakland with 126. The cities for which the Local Registrars reported the next highest numbers of births registered in September were, in descending order: Sacramento, 41; San José, 39; Berkeley, 36; Fresno, 32; Pasadena, 28; San Diego, 21; and Stockton, 21. The other cities from which birth certificates have been received in accordance with the registration law now in effect are as follows, arranged alphabetically: Grass Valley, Napa, San Bernardino, Santa Barbara, Santa Cruz, Vallejo, and Watsonville.

Altogether 1,366 marriages were reported for September from forty counties. Since the present law took effect, an aggregate of 3,604 marriages have been registered in forty-six counties altogether. The totals by months were as follows: June (including part of May), 267; July, 904; August, 1,067; and September, 1,366. Of the 3,604 marriages registered in the entire State, as many as 1,186, or about one third (32.9 per cent) of all, were in the metropolis, San Francisco. At least 100 marriages were also registered in the three or four months covered in each of the following six counties: Alameda, 390; Santa Clara, 274; Sacramento, 270; San Joaquin, 144; San Bernardino, 133; and Fresno, 106. Next in numerical order for total marriages registered in approximately the July-September quarter are the following seven counties: San Diego, 99; Orange, 87; Santa Barbara, 76; Riverside, 66; Santa Cruz, 66; San Mateo, 63; and Mendocino, 58. Between 20 and 50 marriages

have been registered in each of the following twelve counties, arranged alphabetically: Calaveras, Kern, Monterey, Napa, Nevada, San Luis Obispo, Shasta, Solano, Stanislaus, Tulare, Ventura, and Yolo. In the period covered marriages have also been registered in the following twenty counties: Alpine, Butte, Del Norte, El Dorado, Glenn, Inyo, Kings, Lake, Lassen, Mariposa, Merced, Modoc, Plumas, San Benito, Sierra, Siskiyou, Sutter, Tehama, Trinity, and Yuba. Though the eleven counties from which the County Registrars have not yet forwarded certificates of marriages include one populous county, none of the others had over 40,000 inhabitants in 1900, and, in fact, all except three were of less than 20,000 population at the last Federal census.

A total of 1,811 deaths, exclusive of stillbirths not tabulated, were reported for September from forty-eight of the fifty-seven counties in the State, including seventy-four cities and incorporated towns. Reports that no deaths occurred in the month were received from three County and fourteen City or Town Registrars. The principal causes of death were general diseases (especially other than epidemic diseases), diseases of the nervous system, of the circulatory system, of the digestive system, and violence. About one eighth of the deaths were due to tuberculosis, and about one twelfth to heart disease. The next most important specific causes of death in September were cancer, pneumonia, Bright's disease, apoplexy, and diarrhea and enteritis.

Causes of Death.—The following table gives the number of deaths from the diseases included under each of the main headings of the International classification for California in September and August repectively. For convenience in comparison, the proportion of deaths from each class per 10,000 from all causes is likewise shown for both months:

Class.	Number.		Proportion per 10,000.	
	Sept.	August.	Sept.	August.
ALL CAUSES	1,811	1,844	10,000	10,000
General Diseases	527	560	2,910	3,037
Epidemic diseases	96	96	530	521
Other general diseases	431	464	2,380	2,516
Nervous System	229	213	1,264	1,155
Circulatory System	210	223	1,160	1,209
Respiratory System	159	129	878	700
Digestive System	192	182	1,060	987
Genito-urinary System	120	107	662	580
Childbirth	13	10	72	54
Skin Diseases	2	10	11	54
Locomotor System	2	3	11	16
Malformations	5	11	28	60
Early Infancy	84	74	464	401
Old Age	49	77	270	418
Violence	162	194	895	1,052
Ill-defined Diseases	57	51	315	277

About one fourth of the deaths each month were caused by general diseases other than epidemic diseases, the class which includes tuberculosis and cancer. In August there were relatively more deaths from diseases of the circulatory system than from those of the nervous system, but in September the balance had shifted so that then the proportion of deaths from diseases of the nervous system was somewhat

greater than that from diseases of the circulatory system. Further, while in August more deaths were caused by violence than by diseases of the digestive system, in September there were more deaths from diseases of the digestive system than from the various forms of violence. In both months the next most important causes of death were diseases of the respiratory system and of the genito-urinary system.

The following table shows for September the number of deaths from the leading specific diseases, as well as the proportion per 10,000 from all causes:

Disease.	Number.	Proportion.
All Causes	1,811	10,000
Tuberculosis	235	1,298
Heart disease	159	878
Cancer	104	574
Pneumonia	97	537
Bright's disease	93	513
Apoplexy	88	486
Diarrhea and enteritis	85	469
Old age	49	270
Congenital debility	46	254
Meningitis	39	215
Typhoid fever	38	210
All others	778	4,296

About one death in eight was caused by tuberculosis and one in twelve by heart disease. In round numbers about one death in twenty was due to cancer, pneumonia, Bright's disease, apoplexy, or diarrhea and enteritis, and, roughly speaking, about one in forty was due to old age, congenital debility, meningitis, or typhoid fever.

PUBLIC HEALTH ASSOCIATION.

The California Public Health Association will hold its fifth session at the Board of Health room, City Hall, San Francisco, beginning at 10 A. M. October 28th. The following is the program:

10:00 A. M.—Greeting by the President, Dr. E. von Adelung, Oakland.

10:15 A. M.—"Sanitation of Stanford," Dr. W. F. Snow, Stanford University.
Discussion to be opened by Dr. R. L. Wilbur.

11:00 A. M.—"Contamination of Water Supplies," Dr. N. K. Foster, Sacramento.
Discussion to be opened by Dr. F. G. Canney.

11:45 A. M.—Questions and general discussion on any desired subject.

12:00 M. —Noon recess.

1:30 P. M.—Questions continued.

2:00 P. M.—"Disinfection," Dr. J. A. Cobb, Passed Assistant Surgeon U. S. Public Health and Marine Hospital Service, Los Angeles.
Discussion to be opened by Dr. W. C. Hassler.

2:45 P. M.—"Quarantine in Typhoid," Dr. Woods Hutchinson, Arrowhead Sanatorium.
Discussion to be opened by Dr. Charles C. Browning.

3:30 P. M.—"Control of Contagious and Infectious Diseases of Aliens arriving in San Francisco," Dr. H. S. Cumming, Passed Assistant Surgeon U. S. Public Health and Marine Hospital Service, San Francisco.
Discussion to be opened by Dr. Trotter, U. S. Public Health and Marine Hospital Service.

4:15 P. M.—"Undrawn Fish and Poultry," Dr. F. G. Fay, Sacramento.
Discussion to be opened by Prof. A. R. Ward.

Discussion will follow each paper; speakers limited to five minutes. Evening session at pleasure of Association.

Every person interested in sanitation is cordially invited.

THE SALE OF POISONOUS DRUGS.

The death reports for September show that eleven deaths in the State resulted from acute opium or morphine poisoning. In most of the cases the drug was obtained at drug stores where no record was kept of the sale, which is a violation of the law. Many, in a state of despondency, get and take the drug, and their lives are lost, when, if the law was enforced, they would be saved. Perhaps more pitiable than the deaths resulting from acute opium poisoning are the lives of the morphine fiends, who are too often made such by the criminal ease with which they can get the drug.

At a meeting of the State Board of Health, held in Sacramento, October 10th, the following resolution was unanimously passed:

Resolved, That the sale of morphine and other forms of opium without the proper observance of the law regulating the sale of these drugs is the cause of many deaths, and the Secretary of the Board is instructed to notify all health officers, through the Monthly Bulletin, that it is their duty to see that this law is enforced.

It is the duty of every health officer in the State to enforce all laws pertaining to health matters, the sale of poisonous drugs as well as others, and they should cause the prosecution, to the fullest extent, of any druggist violating it.

DIPHTHERIA.

Diphtheria is eminently a contagious disease, each case coming from some preceding case, and from nothing else. The infection may enter the body in a great variety of ways. It may pass directly from mouth to mouth, or indirectly by objects which have become contaminated. Dried sputa, when raised as dust, may be a prolific source of infection, as would the fine spray from sneezing or coughing. Food may also become infected, especially milk or cream. It follows that if proper care be exercised with each case diphtheria could soon be banished from our midst. It is perhaps too much to be hoped that this will ever be accomplished, but to have the disease epidemic in a locality casts a reflection on the health authorities and causes the thought to arise that they are not doing their full duty. This is not always just, for often the people are at fault, neglecting to report light cases and disobeying the instructions of the health officer. Indeed, this is the most frequent cause of epidemics, and a light case of the disease is more dangerous to a community than a severe one. The child that is severely sick will be kept under close watch, confined to its room, all the discharges destroyed, and everything in contact with the patient disinfected. With the mild case the reverse is true. The chances are it continues in school, or if taken out plays with the neighboring children. The throat being irritated, the child, whenever the occasion requires, expectorates the secretions filled as they are with the disease germs, often using little care where the expectorated matter falls. Its hands and playthings become contaminated and the disease is readily given to its playmates. This means of spreading the disease can not be too strongly impressed upon the people, and great care should be exercised not to allow a case of sore throat to go until sure it is not *diphtheria.* Every case should be looked upon as suspicious, and if *diphtheria is known to* exist in the vicinity the patient should be

isolated until all doubts are removed. While personal contact is a great source of spread, place infection and that of books, playthings, and clothing must not be neglected.

There is no doubt that the schools are one great means of spreading the disease, and to them the health officer should give his earnest attention. There should be a daily examination of each school by a physician, when the disease prevails. This may seem expensive, but it would save many lives, and frequently physicians can be found who will volunteer to do this work, or if this is not possible the principal should make the examination. Each pupil found with an inflamed throat, fever, or feeling ill in any way, should be sent home and isolated until such time as it can be determined what is the nature of the trouble. It is seldom necessary to close the schools, and it is an open question if more harm may not result with the children on the streets, where many of them will be, than in school. If the school is properly cared for it is best not to close it, but more attention must be given to disinfecting the school-room and to removing all sources of communication from the affected who may possibly pass the daily examination. *No common drinking-cup should be allowed.* The custom of collecting the pencils and redistributing them should not be allowed, as children almost invariably moisten the pencil in the mouth, thus making it a means of transmitting disease germs to the next child who has the same unsanitary habit. It must always be remembered that nothing short of a bacteriological examination can positively say that the diphtheria germ is not present in the secretions of a throat, hence the absolute necessity of avoiding all means of communication such as kissing, common use of pencils, drinking-cups, spoons, towels, or handkerchiefs.

More attention must also be given to disinfection of the school-room. Always, after a case has developed in a school, it should be thoroughly disinfected, special attention being given to any books, papers, or pencils used by the child. Formaldehyde is most generally used at present, although sulphur for school-houses may be used to advantage, as it kills all insect life, and as insects are known to spread some diseases, this is a valuable point. Its being destructive to metals and fabrics lessens its value for the private house. In using sulphur it is necessary that the atmosphere be moist, so the iron vessel in which the sulphur is burned should be set in water, which will be evaporated by the heat and give the required moisture. Five pounds must be used for every 1,000 cubic feet of space. In using formaldehyde it is necessary to get the largest quantity of gas in the shortest possible time. This is perhaps best accomplished by means of the permanganate of potash method, six and a half ounces of the fine crystals being put in a twelve-quart iron pail and sixteen ounces of the 40 per cent formalin quickly poured upon it. This amount of formalin should always be used for 1,000 cubic feet of space, no matter what method is employed. Whatever method or means of disinfection is used, the exposure should be as long as possible. The rooms must be *sealed*, by pasting strips of paper over all cracks, closing registers, ventilators, and fireplaces. All drawers and desks should be opened, and if carpets are on the floor they should be raised so that the gas can readily get under them.

The attention given the sick-room is of vast importance, for there are many ways for the disease germ to escape. First, the patient should be isolated *as far from* the family as possible, and in a room with only

the furniture absolutely needed. Carpets and draperies are unnecessary, and should be discarded. After the patient enters it nothing should be removed from the room until it has been disinfected. The attendants should be limited to the physician and nurse, and all visitors should be denied admission. All remains of food should be burned, as should rags or papers used to receive the expectorated discharges. It is not uncommon to see in the sick-room the bottle which contains the milk or cream as it came from the dairy. This should never be allowed, for it is liable to become infected and spread the disease.

The germs of diphtheria are readily destroyed by heat, boiling water killing them almost instantly, hence it is easy to disinfect at the bedside, where it should always be done. All towels, clothing, tableware, and in fact everything that moisture does not injure, should be immersed in boiling water before removing them from the room. Bed clothing that can not be boiled must be exposed during the general disinfecting. Books will require special care, and if used by the patient had better be burned; if not, they must be spread out when the room is disinfected, for if left closed no good will result.

Domestic animals must be excluded from the sick-room, for it is possible for them to carry the disease. Flies also must be remembered, for if allowed in the room they can easily, and almost surely will get the secretions from the patient on their feet and legs and fly to some other place where they can wash them off in milk or wipe them off on other food.

To the lasting shame of a few physicians, they do not report their cases. Their usual plea is, "Oh, they were light cases." The doctor who, for personal, political, or financial reasons, neglects to report cases of diphtheria is morally, and should be criminally, responsible for the sickness or death of any one contracting the disease from the unreported case. It is no friendship to the family to neglect this duty to the public, for the disease will linger in the house unless thoroughly disinfected, as is almost never done unless by health authorities. The physician well knows that from light cases there is a liability of malignant ones arising, and his neglect to report is a violation of a sacred trust.

In all cases the patient should be isolated continuously until two examinations of the throat secretions, made twenty-four hours apart, show the absence of the diphtheria germ. Most cities have a laboratory where this is done, and the State Hygienic Laboratory for this purpose, free to all health officers of the State, is maintained at Berkeley.

In case of death public funerals should not be allowed.

The disinfection of the room *must* be thorough. Too often dependence is put upon small sulphur candles or a mere sprinkling of formalin, and the cracks are left open. The same care as to sealing the room must be exercised, and the same amount of disinfectants used, as described for school-houses.

Sunlight and air are among our best disinfectants, and must always be used to the fullest extent. Get all you can of both in the sick-room. While they will not kill the germ like formaldehyde, it does not thrive in them. They invigorate the patient and attendants and add greatly to the resisting power of the body, which is our main defense against *disease.*

Antitoxin should be freely used upon the first appearance of the disease,

no matter if it is mild. Its use is free from danger, and good authorities claim that no child ever died of diphtheria where 3,000 units were used during the first twenty-four hours, and the dose repeated as needed. Larger doses than this are often necessary when the disease is more advanced, and in all cases the condition of the patient should be the criterion from which to judge. If no improvement is seen in twelve hours the dose should be repeated, and continued each day until the exudate has disappeared.

HONEST LABELING OF FOOD MATERIALS.

In view of some of the criticisims which have appeared in the press of the State, with reference to our analyses of "evaporated creams," it seems advisable to say a few words regarding the object of the work.

It is well known, as stated by the writer[1], that "there are, in the main, two methods of adulteration employed: the one harmful and sometimes poisonous to the human system, and the other the deceptive and fraudulent, but not generally injurious to the health of the consumer.

"In those states where enforcement of pure-food laws is carried on, most of the work is devoted to the detection of the harmful and injurious preservatives, while the second method, just mentioned, has been investigated but to a very limited extent, and there are even certain frauds which do not come within the pale of laws now exercised.

"The first method referred to above does not require any extended discussion, because all will agree that no food should be manufactured or sold which contains harmful or injurious ingredients. It would seem that, in the light of our present knowledge, it would be far safer to prohibit the use of preservatives in foods or food materials. If, later on, science can show, as some claim it will, that the small addition of certain preservatives is harmless, then the laws can be modified accordingly. Still it must not be forgotten that the results of experiments made on healthy subjects can not be expected to be applied to the invalid and convalescent or dyspeptic, for whom many of the foods now containing preservatives are prescribed or recommended.

"With the second method, the deceptive and fraudulent, etc., the case is very different. No one should be prohibited from manufacturing or selling any admixture of foods or food materials, provided the package is *honestly labeled*, thus insuring the sale of the materials *for just what they are*.

"Several forms of mislabeling can be enumerated, among which the following are the most conspicuous: (1) False statements concerning the nature of the contents of packages of foods or food materials; (2) False statements regarding the nutritive value of the different manufactured and prepared foods; (3) False statements or inferences relating to the weight of foods or food materials in any package.

"With reference to No. 1, it may be said that the fraud, in most cases, is of a pecuniary nature. Cheap materials are added to more expensive ones, thus bringing cheap and inferior products into competition with those from the hands of the honest manufacturer. While the addition of mustard or cottonseed oil to a salad will not have any appreciable effect on the health of the consumer, still there is the pecuniary fraud

[1] California *State Medical* Journal, June, 1904.

which should be prevented. At the same time no one should be denied the right to buy the cheap oils. But those who wish to purchase pure olive oil should not have to remain in doubt as to its purity and quality, as at present they so often have to do. The enforcement of proper labeling would obviate all of these difficulties. Again, no prohibitory restrictions should be placed upon the manufacturer who wishes to make a jelly consisting of a mixture of apple and currant, or a cornstarch and fruit jelly, or a butterine made up of butter and oleomargarine, etc., nor, in fact, any compound from the admixture of two or more food materials each of which may possess different nutritive and pecuniary values, provided the proper statements are *plainly in evidence* on the label.

"In many cases the nature of the main contents of the package is plainly printed, but the type used for the name or names of the adulterants is so small, and often so concealed in the "foliage" of the label, that unless one is very careful he is led to believe that the contents consist entirely of the material indicated by the large type. This is particularly true of honey. There are cases where the words 'Pure Honey' have a prominent position on the label, but only after careful search will one find the statement, '20 per cent honey and 80 per cent glucose.' Thus the manufacturer has complied with the law in name, but, as far as the consumer is concerned, has decidedly evaded it in spirit. There should be no objection against the manufacture of a butter containing 20 per cent of water, if such be stated on the wrapper and the butter be subjected to a discount; because the purchaser should not be obliged to pay for 8 to 10 per cent extra of water at the price of butter fat.

"Prominent among the deceptions practiced under the second form above mentioned may be noted several proprietary foods, infant foods, cereal breakfast foods, coffee substitutes, and 'evaporated creams.' The 'evaporated creams' are excellent food, to which no objection can be raised, but they should be *honestly labeled for just what they are.* These materials are seldom, if ever, admixed with any poisonous or harmful adulterants."

M. E. JAFFA.

FOOD LABORATORY, UNIVERSITY OF CALIFORNIA.

CALIFORNIA STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director* ..... University of California, Berkeley

VITAL STATISTICS FOR OCTOBER.

Summary.—For October, vital statistics were reported from all except four of the fifty-seven counties in California. The population in 1905 has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905 and for some leading cities arbitrary estimates have been made because of their exceptionally rapid growth. For fifty-three counties with a population, thus estimated, of 1,678,124 there were reported 1,873 living births, 2,117 deaths exclusive of stillbirths not tabulated, and 1,464 marriages, or 2,928 persons married. These figures represent an annual birth-rate of 13.1, a death-rate of 14.9, and a marriage-rate of 10.3, or 20.6 persons married, per 1,000 population.

In "Greater San Francisco," or the metropolis together with Oakland, Berkeley, and Alameda, the proportion of all deaths caused by such complaints as heart disease and diarrhœa and enteritis is considerably above the average proportion for California as a whole. For the rest of the State, on the contrary, the proportion of all deaths due to certain causes is above the general average for epidemic diseases, nervous diseases like meningitis, apoplexy, and paralysis, and deaths from various forms of violence—suicides, drowning, and accidental injuries.

In October, as usual, tuberculosis was the leading specific cause of death in California. It is significant, however, that about one ninth (11.4 per cent) of the victims of this disease had lived in the State less than a year. Of the native Californians who died of tuberculosis, about one third were less than, and two thirds were at least, 15 years old.

Causes of Death.—The table below gives the number of deaths reported for October, by main headings of the International Classification, for California as a whole and also for "Greater San Francisco" or the metropolitan area (San Francisco and the three transbay cities) in contrast with all the rest of the State. For convenience in comparison, there is likewise shown the proportion of deaths from each class per 10,000 from all causes:

Class.	Number.			Proportion per 10,000.		
	California.	Metropolitan Area.	Rest of State.	California.	Metropolitan Area.	Rest of State.
ALL CAUSES	2,117	800	1,317	10,000	10,000	10,000
General diseases	653	243	410	3,085	3,038	3,113
Epidemic diseases	128	34	94	605	425	714
Other general diseases	525	209	316	2,480	2,613	2,399
Nervous System	190	56	134	898	700	1,017
Circulatory System	243	110	133	1,148	1,375	1,010
Respiratory System	184	67	117	869	838	888
Digestive System	261	115	146	1,233	1,438	1,109
Genito-urinary System	153	66	87	723	825	661
Childbirth	23	6	17	108	75	129
Skin diseases	6	4	2	28	50	15
Locomotor System	4	3	1	19	37	8
Malformations	20	12	8	94	150	61
Early Infancy	67	38	29	317	475	220
Old Age	63	21	42	298	262	319
Violence	194	52	142	916	650	1,078
Ill-defined diseases	56	7	49	264	87	372

The table shows that in California as a whole about one fourth of all deaths were due to other than epidemic general diseases, the class including tuberculosis and cancer, and about one eighth were caused by diseases of the digestive system, including diarrhœa and enteritis. The next largest proportions were from diseases of the circulatory system, violence, diseases of the nervous system, of the respiratory system, of the genito-urinary system, and epidemic diseases, in the order named.

There are marked differences between "Greater San Francisco" (the metropolis together with Oakland, Berkeley, and Alameda) and the rest of the State in the relative importance of the different classes of diseases. Thus, considering only the most striking contrasts, one finds that in the metropolitan area the proportion of deaths was much above the average for California as a whole for diseases of the circulatory system and of the digestive system, in which the principal specific diseases are respectively heart disease and diarrhœa and enteritis. In the rest of the State, on the other hand, the proportion was above the general average, especially for epidemic diseases such as typhoid, malaria, whooping-cough, and diphtheria and croup, for diseases of the nervous system, including meningitis, apoplexy, and paralysis, and for violence, comprising suicides, drowning, and accidental injuries.

The following table shows for California as a whole the number of deaths from the leading specific diseases, as well as the proportion per 10,000 from all causes:

Disease.	Number.	Population.
ALL CAUSES	2,117	10,000
Tuberculosis	299	1,412
Heart disease	184	869
Pneumonia	127	600
Cancer	119	562
Diarrhœa and enteritis	112	529
Bright's disease	106	501
Apoplexy	94	444
Accidental injuries	75	354
Old age	63	298
Typhoid fever	52	246
Suicides	42	198
Meningitis	33	156
Premature birth	33	156
All others	778	3,675

As usual, tuberculosis was the main cause of death, with heart disease next in order. It is significant, however, that a considerable proportion of those who died of tuberculosis in California were only recent residents of the State. This appears from the following table, showing the length of residence in California of the 299 victims of tuberculosis:

Length of Residence.	Number.	Per cent.
TOTAL	299	100.0
Under 1 year	34	11.4
Under 1 month	8	2.7
1 to 2 months	9	3.0
3 to 5 months	7	2.3
6 to 11 months	10	3.4
1 to 4 years	31	10.4
5 to 9 years	19	6.3
10 years and over	95	31.8
Life	95	31.8
Unknown	25	8.3

The table shows that of the 299 persons who died of tuberculosis in California in October, 8 had been in the State less than a month, 9 had lived here only one or two months, and altogether 24 or 8.0 per cent of the total had resided here less than six months, while an aggregate of 34 or 11.4 per cent had been residents of the State less than a year. It may be noted that of the 95 native Californians who died of tuberculosis, 33 were less than 15 years old and 62 were at least 15 years of age.

STATE HYGIENIC LABORATORY.

The last Legislature enacted a law establishing a State Hygienic Laboratory at the State University, Berkeley, for bacteriological and chemical analyses, under the management of the State Board of Health. The bacteriological department is equipped and ready and anxious for work which will be of aid to the health officers and physicians of the State. Containers in which to mail different pathological products will be sent, upon application, to any part of the State. Upon receipt of the specimen to be examined at the laboratory, together with the card which accompanies each, properly filled, the work will be done at once, and report made by mail or telegraph as requested. Already many health officers have availed themselves of the laboratory to verify the diagnosis of diphtheria and typhoid. We have also water-containers, which will be sent to any health officer who wishes to have a sample of water examined. In order to have samples arrive in such a condition

that an examination will be of value, the directions in the containers must be studied and closely followed.

Owing to the limited appropriation we have not been able to fully equip the chemical department, but arrangements have been made with Prof. M. E. Jaffa of the University, whereby a certain number of food analyses will be made.

We hope that the health officers throughout the State will avail themselves of this laboratory, as it can be made a valuable aid in clearing up doubtful diagnoses and suppressing epidemics, in preserving the purity of our streams, wells, and lakes which furnish domestic water supplies, and in spreading information regarding adulterated food.

NOTICE CONCERNING THE STATE HYGIENIC LABORATORY.

There are ready for distribution mailing cases for collecting specimens for laboratory examinations for diphtheria, typhoid fever, and tuberculosis. The services of the laboratory, in examining material for these diseases, are free to physicians who do not have the privilege of municipal laboratory service.

In order that the mailing cases may be available for the use of as large a number as possible, it is desirable that a supply of them be kept in drugstores. This is especially necessary in the case of the diphtheria outfits, which must be exchanged for fresh ones when the blood serum becomes dry. Experience elsewhere has shown that druggists readily consent to this and that the system is a convenient one for both the laboratory and the practitioner. Health officers or other physicians desiring to use the laboratory are requested to make such arrangements with a local druggist, and to notify the laboratory to that effect. When such a plan is not practicable, mailing cases will be sent direct to applicants. Containers will be sent, charges collect, in each instance, as funds are not available for express charges.

Laboratory reports are particularly useful in diphtheria epidemics. When a mild incipient case is encountered, the physician may suspect, or even be quite certain, that he has a case of diphtheria. Nevertheless, he will hesitate to give a diagnosis which will necessitate a quarantine. He may then take a swab and mail it to the laboratory as letter mail. The report will be made by telegraph, if desired, and if the report is positive the health officer will also receive a report by mail from the laboratory. Under such circumstances a quarantine may be established with greater confidence than otherwise.

Examination of Water.—Upon request of the health officers, the State Hygienic Laboratory is prepared to make bacteriological examinations of water samples with reference to sewage pollution. Such examinations are worthless unless samples are collected in sterilized containers, with an observance of strict precautions. A special shipping case, together with directions for collecting and shipping samples, will be sent upon application. Bacteriological examinations of water submitted in containers other than those supplied by the laboratory can not be made. These shippings cases are expensive and the supply is limited. Hence it is necessary to require immediate return to the laboratory.

The examination of water for typhoid-fever bacteria is too difficult and unsatisfactory for routine work. Reports will be made upon the existence of sewage pollution emanating from man or animal.

A. R. WARD, Director.

ADULTERATED BUTTER.

The following report has been received from Prof. M. E. Jaffa, Food Laboratory, State University, Berkeley:

We had a sample of so-called butter sent to us, which was made by taking a pound of butter and a pint of milk and adding thereto some compound, with the idea that there would result two pounds of butter. The analysis of the material, as received, is as follows:

	Per cent.
Water	52.57
Fat	44.56
Casein, etc.	2.45
Ash	.42
	100.00

A good butter contains about 85 per cent fat. In two pounds of butter there should be about 27 ounces of fat, while the fat-content of two pounds of the material, similar in composition to the above, would be less than 16 ounces, so it can immediately be seen the difference in the nutritive value alone between good butter and the material given us for examination.

The University can not authorize or sanction the manufacture of such a mess, "which is neither good butter nor poor cheese."

Butter fat can not be made in any such manner by such nostrums, and the manufacture of the so-called butter in such a manner is a rank fraud, and should be so treated.

EXAMINE WATER SUPPLY IN TYPHOID CASES.

The health officers and physicians of the State are earnestly requested, whenever typhoid fever appears, to send to the State Hygienic Laboratory at Berkeley for a container, and to have the water supply examined. While other ways for the spread of this disease are recognized, such as flies, insects, personal contact, dust, etc., still water is doubtless the great carrier. Even if the milk supply is at fault, the infection generally gets to the milk through the water. Examinations are made free of charge, and by finding the source of the disease it is frequently possible to prevent an epidemic.

PUBLIC HEALTH ASSOCIATION.

The California Public Health Association held its semi-annual session in San Francisco on October 28th. Dr. Edward von Adelung of Oakland, President of the Association, cordially greeted the members and referred to the magnificent work being done in America in the prevention of disease, and to the importance of such an association.

The first paper, on "Sanitation of Stanford," by Dr. W. F. Snow of Palo Alto, was one of extreme interest and value. He explained, with the aid of maps, the surrounding watersheds, the sources of water supply, drainage and sewage disposal, location of dairies, and the various sources of pollution to which the streams are liable. The geological formation had also been studied so that the source of water supply in each location was known. He outlined the ideal office, and clearly showed the great utility of an active, wideawake health department. *It is not always that* an epidemic leads to such good results. The

price may have been big, but Stanford will never have another epidemic of typhoid while the present organization exists, and the rest of the State will learn much from its experience and present system.

The discussion of "Contamination of Water Supplies" was opened by a paper by Dr. N. K. Foster of Sacramento. The discussion, which was participated in by many of the members, was instructive and interesting. It brought out the fact of the contamination of our streams, reservoirs, and wells, and the great danger to which the people are exposed. The question was considered of such importance that at the April meeting more time will be given it, so that it can be discussed in all its phases and especially as to means of prevention.

Dr. H. S. Cumming, Passed Assistant Surgeon U. S. Public Health and Marine Hospital Service, gave an interesting and instructive talk on the "Control of Contagious and Infectious Diseases of Aliens arriving in San Francisco." The subject was clearly and forcibly handled and every one was convinced that it would be difficult for any contagious disease to get by the San Francisco inspection.

"Undrawn Fish and Poultry" was the subject of a paper by Dr. F. G. Fay of Sacramento. A synopsis thereof is printed in another article.

The interest shown in the meeting was extremely gratifying, and the papers and discussion showed deep thought and preparation. The attendance, while not large, was in earnest, and much good will result. The State is large and most health officers get but small pay and can not afford the expense of the trip. The advantages to be gained by association and by discussion of sanitary questions are beyond estimate, and every health officer should have the benefit of them, and it would be in the interest of the people if the Legislature should pass a law requiring each health officer to attend, his necessary expenses being paid by the county or municipality served.

DANGER IN UNDRAWN COLD-STORAGE POULTRY.

The question of the healthfulness of poultry that is not drawn at the time of slaughter is of particular interest at this season, and the paper on "Undrawn Fowls and Fish" by Dr. Fay of Sacramento, read at the last meeting of the California Health Association, is timely.

The doctor showed that fowls are killed, sometimes without bleeding, "picked" while dying, and frozen without removing the entrails. He declared that sometimes they are starved for twenty-four hours to clean them of excrement, but frequently are killed with full crops; that decomposition of organic matter begins at once when such matter is deprived of life; that freezing does not entirely stop decomposition, and that when thawing begins the decomposition is very active. The fowls are taken from cold-storage and exposed for sale, the frost being either wholly or partially removed. Many hours elapse from the thawing to the table—a time active in decomposition. He quotes from Bulletin No. 144, U. S. Department of Agriculture, as follows:

> The presence of undigested food and of excrementitious substances in animals which have been killed most certainly favors the tainting of the flesh and general decomposition. The viscera are the first parts to show putrescence, and allowing these to remain within the body can not otherwise than favor infection of the flesh with *bacteria and ptomaines.*

F. F. Cassady, in "The Dietetic and Hygienic Gazette," says:

The fowl is killed, transported long distances, and kept in a cold-storage warehouse for days and weeks, before being eaten. In the meantime the ptomaines developed in the mass of excrementitious material in the fowl's entrails have infiltrated the entire fleshy portion of the specimen, and made the bird a mass of putrescent, decaying flesh and a deadly poison to the person who eats it. It is just as reasonable for the consumer to buy lambs and calves, intestines included, as to pay for the entrails of chickens and turkeys. As long as the public are willing to put up with such impositions and filthy practices they will exist. In my opinion many hundreds of cases of deaths by poisoning can be traced to ptomaines in the manner indicated, and persons have undoubtedly been wrongfully accused of administering poisons to others, when as a matter of fact the true cause of death was ptomaines. Ptomaine poisoning frequently resembles strychnine poisoning in the severity of its onset and course, and the picture presented in such cases may well deceive even trained observers, especially in the absence of examination for other poisons. The preservation of undrawn poultry in cold storage for food is filthy, unsanitary, and a menace to public health.

The holiday season is upon us, and we will have fowls of this kind offered us and will no doubt partake, and as a result we will have the usual number of holiday cases of indigestion, varying in degree from a severe cramp to the cholera-like trouble which kills.

Watch well the fowls you buy and take none that have been frozen with entrails unremoved.

PURE MILK.

A crusade for pure milk is going on throughout the State, and every one must wish it godspeed. With tuberculosis present in the herds, the dairy building filthy, the milkers oftentimes dirty and diseased, the milk in the cans when being distributed exposed to the dust in the atmosphere, and dangerous quantities of preservatives sometimes in the milk, there is certainly great need for such a crusade. None of these conditions should exist, and the public agitation will, in a measure, lessen them. Milk is a necessary article of diet, and should be furnished pure. It can be, but it depends in no small degree upon the consumer. The producing and selling of milk are commercial, as much as that of flour or cloth, and are governed by the same laws. If one demands a good article he must pay for it. Cheap flour will be made from cheap or dirty wheat, and cheap milk will be supplied from poor cows kept in cheap and unsanitary surroundings and it will be served in dirty containers. To have the corrals clean, the milking-shed whitewashed and free from dust and dirt, the milkers dressed in freshly washed suits, the containers cleaned with steam, and the milk-house free from flies and odors requires an outlay of money for which the owner must get a return. His milk costs more to produce, and therefore he must get a better price. Consumers too often demand cheap milk, and, getting it, find fault that it is poor and soon spoils. This forces the producer to the use of preservatives to keep the cheap milk sweet—a proceeding entirely unnecessary if the milk has been kept clean. If consumers demand good milk they can get it, but it will cost more money.

In every city can be found some dairyman who will be willing to furnish pure and clean milk for a reasonable advance in price. The Oakland Home Club is getting such a milk, the dairyman agreeing to conform to the requirement of the Club, which are those recommended by the United States Bureau of Animal Industry. The dairy is inspected and the cows tested as often as necessary, and an examination of the milk is made frequently. The limit of bacteria is placed at

10,000, but has never come above 3,000, while the ordinary dairyman's milk often goes to 500,000 or 1,000,000. This is the difference between pure milk, which is a nourishing food, and a filthy solution, which is the cause of much of the indigestion and malnutrition in children.

Laws will always be necessary to protect the public against themselves and unscrupulous producers, and should be strictly enforced; but a recognition by the consumers that pure milk is worth more than impure is also necessary.

The care of milk at the home is also an important factor. The milk-pan is sometimes the last dish washed, and, without scalding, is wiped upon a towel that has done service for all the other dishes, and, the milk having been poured in, it is set where flies can take a drink, and even mice occasionally refresh themselves from it. The careless maid may also leave it on the table or shelf while she sweeps the floor, and it catches the dust filled with all kinds of unmentionable filth. The pan should be thoroughly washed with soap and warm water and scalded with boiling water and dried with a *clean* towel. After receiving the milk, one should protect it from the contaminating influence of animals, insects, or dirt, for the dirt allowed to enter after the milk has been received at the house is as bad as that entering it before. Buy pure, clean milk, and keep it clean, and much sickness of children will be prevented.

CALIFORNIA STATE BOARD OF HEALTH.

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STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*.....University of California, Berkeley

NOTICE TO REGISTRARS.

New Numbers for Certificates.—The attention of Local Registrars is drawn to the requirement of the registration law that new series of numbers be started for the certificates of births, marriages, and deaths filed with them each calendar year. The Local Registrar, after transmitting to the State Registrar the certificates for December, 1905, should put the number 1 on the first certificate of death filed with him in January, 1906. The same rule of course applies to certificates of births and marriages. Since the certificates are indexed separately and systematically in the State Bureau of Vital Statistics, it is immaterial if an occasional birth, marriage, or death taking place late in 1905 is numbered by the Local Registrar in the new series for 1906.

VITAL STATISTICS FOR NOVEMBER.

Summary.—For November, vital statistics were reported from fifty-two counties with a population estimated conservatively at 1,663,995. There were 1,699 living births, 2,153 deaths exclusive of stillbirths not tabulated, and 1,243 marriages, or 2,486 persons married. These figures represent an annual birth-rate of 12.4, a death-rate of 15.7, and a marriage-rate of 9.1, or 18.2 persons married, per 1,000 population.

The leading specific cause of death, as usual, was tuberculosis, followed by heart disease and pneumonia. Tuberculosis is especially prevalent in Southern California (Santa Barbara, Ventura, Los Angeles, San Bernardino, Orange, Riverside, and San Diego counties), where 32.9 per cent of the deaths from this disease occurred against only 24.2 per cent of the total deaths. However, 19.5 per cent of those who died of tuberculosis in Southern California had lived in the State less than a year and altogether 53.7 per cent had lived here less than 10 years, as compared with only 3.2 and 17.7 per cent, respectively, for Northern California. North of Tehachapi the great bulk of the victims of this disease were native Californians or old inhabitants, while in the south a majority were comparatively recent residents of the Golden State.

Causes of Death.—The table below shows the number of deaths reported for November, by principal classes, for the State as a whole and also for Northern or Superior California in contrast with the seven counties of Southern California. For convenience in comparison, the proportion of deaths from each class per 10,000 from all causes is likewise given:

Class.	Number.			Proportion per 10,000.		
	The State.	Northern California.	Southern California.	The State.	Northern California.	Southern California.
ALL CAUSES	2,153	1,632	521	10,000	10,000	10,000
General Diseases	630	453	177	2,926	2,777	3,397
Epidemic diseases	106	75	31	492	461	595
Other general diseases	524	378	146	2,434	2,316	2,802
Nervous System	236	184	52	1,096	1,127	998
Circulatory System	281	213	68	1,305	1,305	1,305
Respiratory System	249	205	44	1,157	1,256	845
Digestive System	212	157	55	985	962	1,056
Genito-urinary System	127	98	29	590	600	557
Violence	196	147	49	910	901	940
All others	222	175	47	1,031	1,072	902

There is little difference between Northern and Southern California in the proportion of deaths caused by diseases of the circulatory system, of the genito-urinary system, and violence. However, Northern California exceeds in the proportion of deaths caused by diseases of the nervous and respiratory systems, in which the principal specific diseases are respectively apoplexy and pneumonia. On the other hand, Southern California exceeds in the proportions for general diseases, especially tuberculosis and diseases of the digestive system, including diarrhea and enteritis. The contrast between Northern and Southern California is particularly great for other than epidemic general diseases, the class in which the principal specific disease is tuberculosis. The proportion of all deaths from diseases of this class was 2,316 for Northern California against 2,802 for Southern California, an excess of 486 in the proportion for the latter.

The following table gives for California as a whole the number of deaths from the leading specific diseases, together with the proportion per 10,000 from all causes:

Disease.	Number.	Proportion.
ALL CAUSES	2,153	10,000
Tuberculosis	329	1,528
Heart disease	211	980
Pneumonia	185	859
Cancer	117	544
Apoplexy	98	455
Bright's disease	86	399
Diarrhea and enteritis	82	381
Accidental injuries	72	334
Suicides	52	242
All others	921	4,278

The main cause of death, as usual, was tuberculosis, with heart disease and pneumonia next in order. Tuberculosis is especially prevalent in Southern California, as appears from the following figures:

	Numbers.			Per Cents.		
	Total Deaths.	Tuber-culosis.	All Others.	Total Deaths.	Tuber-culosis.	All Others.
THE STATE	2,153	329	1,824	100.0	100.0	100.0
Northern California	1,632	221	1,411	75.8	67.2	77.4
Southern California	521	108	413	24.2	32.8	22.6

No less than 32.8 per cent of the deaths from tuberculosis occurred in Southern California against only 24.4 per cent of the total deaths, an excess of 8.6 in the per cent for tuberculosis. In this connection, however, it should be noted that deaths of recent residents from tuberculosis are particularly frequent in Southern California. This is shown by the table below giving the number and per cent of tuberculosis victims by length of residence in California for both parts of the State:

	Total.	Length of Residence.				
		Under 1 Year.	1 to 9 Years.	10 Years and Over.	Life.	Unknown.
Numbers.						
THE STATE	329	28	69	105	93	34
Northern California	221	7	32	84	77	21
Southern California	108	21	37	21	16	13
Per Cents.						
THE STATE	100.0	8.5	21.0	31.9	28.3	10.3
Northern California	100.0	3.2	14.5	38.0	34.8	9.5
Southern California	100.0	19.5	34.2	19.5	14.8	12.0

The table shows that of those who died of tuberculosis in Southern California 19.5 per cent had lived in the State less than a year and altogether 53.7 per cent had lived here less than 10 years. The corresponding per cents for Northern California were 3.2 and 17.7 and for the entire State were 8.5 and 29.5, respectively. The great bulk of those who died of tuberculosis in Northern California were natives of the State or others of long-standing residence, 34.8 per cent being native Californians and 38.0 per cent others who had lived here at least 10 years. For Southern California the corresponding per cents were only 14.8 and 19.5, respectively.

CLEAN CAMPS FOR CALIFORNIA.

The State Board of Health is, as fast and as thoroughly as possible, making an investigation of the sanitary conditions of the different streams and summer resorts of the State. It recognizes in these streams and resorts California's greatest health-giving asset, and that a summer spent in them will do more to restore health and prolong life than any other way it could possibly be spent.

In order that the maximum good can be secured with the minimum danger, the streams must be kept clean and the camps in perfect sanitary condition. This, however, is not always the case. Indeed, many of the streams are polluted to a superlative degree and the camps along them are reeking with filth. This is often the result of conditions grow-

ing so gradually as hardly to be noticed by the proprietor or those using the camp. The results of polluted water and bad sanitary conditions are the same whether the conditions arise from ignorance, carelessness, or greed, and these results are frequently a siege of typhoid fever.

The Board desires to encourage life in the open air, firmly believing that such a life will do more for the general health of the people than any other thing; but it believes it to be its duty to warn against such resorts and localities as persistently refuse to better their sanitary conditions and hence endanger life. It is not our intention to publicly denounce any place until it has been investigated and notified and then refuses or neglects to remedy the defect.

It is encouraging to notice that most proprietors are willing and anxious to adopt any proposition that will better the condition of their resort. Some are rebellious and bluntly refuse to do anything.

The policy of the Board will be to thoroughly inform itself as to the facts, notify the parties in charge of any needed sanitary improvements, and wait a reasonable time for an effort at compliance. If not made in good faith publicity will be made of the conditions and where necessary the laws will be enforced. The Board is frequently consulted by parties desiring to know the healthfulness of the different localities, and it will strive to be posted and give reliable information.

It is interesting to know that the necessity of keeping our streams clean and pure has strong advocates outside the health departments. The following from Josephine Kinney Walker, chairman of the Purity of Streams Committee of the California Club of San Francisco, should be read by everybody, and no one can tell how many lives would be saved if its warnings were heeded:

A PLEA FOR PURE STREAMS.

Children:

Notice the beauty of the flowing streams; think well about their uses. Cultivate a respect for them; they are nature's irrigation plants, homes of the fish, delight of the birds, water-carriers for man and beast, singing as they serve.

Running waters are life-savers. Throw nothing into them to contaminate, poison, and make them life-destroyers. It is selfish, vulgar, even criminal.

Picknickers:

Your enjoyment is lacking without the streams; why destroy their fringed edges, spoil their shade, or render water unsightly with trash?

Campers:

Dig holes to receive all rubbish; neutralize and bury, or burn refuse. Do not burden the streams with it. The birds may claim a share of broken food. Leave no fires unattended.

Housekeepers:

Empty no tubs, cleanings of either fish, fowl, animal, fruit, vegetable, or dairy into your adjacent stream, even though dry. It is not dry in winter.

Farmers:

Do not use arroyos or dry chasms for vaults, looking to storms to cleanse them. Think of your neighbor below. Consider the milk supply and the poisoned water for the stock. Resolve or burn, and fertilize. Try changing stable waste heap and corral yearly and absorb drainage into rank growth of field corn or pumpkins. These will pay you, besides protecting the streams. Study the Pasadena sewer-farm methods. Change and growth purify, and nothing is lost.

Farms, Schools, Summer Resorts, Camp Grounds, Logging and Mining Camps, Villages:

Allow no drains to reach your streams. India gives us warning. Surface sewage, unresolved, has poisoned her soil and her waters.

The early inhabitants of America gave to the waters due respect. Indian shell-mounds and bone-heaps stand as monuments to their care of the streams.

From dripping spring or mountain glacier to the sea, our streams call for protection.

PURE MILK.

Apropos of the question of pure milk, the following quotation from an article by Prof. A. R. Ward, in the "Occidental Medical Times" of May, 1902, will be of interest:

"There is objection to feeding infants on pasteurized milk which was originally contaminated with bacteria and their products. It is said with truth that such milk contains the dead bodies of the bacteria, together with their products, both of which have been found injurious to infants. There is considerable divergence of opinion among the medical profession concerning the comparative digestibility of raw and pasteurized milk. Sterilized or boiled milk is so profoundly altered in its constitution and nutritive properties that it can not be fairly compared with raw milk. It is generally conceded that the proper natural food for infants is milk as free from bacteria as possible, and that measures designed to exclude bacteria must be relied upon to accomplish this result. Dairies conducted with a view to excluding bacteria from milk are not easily put into successful operation, chiefly because of the competition in the milk business. Few men possess the technical knowledge necessary to direct such a business, and even if such an undertaking were inaugurated under private control, it would not succeed in the face of competition. We need in California a limited amount of milk produced under irreproachable conditions, to be sold at a price commensurate with the care bestowed upon its production. In several of the larger cities of the East, dairies are in operation under the direction of an expert commission responsible to some body of men enjoying the respect and confidence of the community. For instance, the Philadelphia Pediatric Society undertakes to furnish a certificate of approval to all dairymen complying with its requirements concerning the precautions essential to the production of good milk. The society appoints a commission consisting of a bacteriologist, chemist, and veterinarian, all men of recognized standing. These three specialists report to the society at regular intervals upon the condition of the dairies and the character of the product. The expense of inspection is borne by the dealer, and indirectly by the consumer. Compliance with the requirements of the society necessitates a greater cost to the consumer, but the justice of the increased charge is not seriously questioned by those familiar with the conditions. The indorsement of the society has a distinct commercial value to the dealers, and is highly prized. Similar commissions are improving the milk supply of New York and Boston.

"The model dairy indorsed by an authoritative society has several commendable features that warrant its introduction in any large city. Physicians are enabled to recommend to their patients a milk produced under the most favorable conditions for insuring a healthful product. To the specialist in pediatrics, such an opportunity is of great importance. But the greatest value of the model dairy is in its power of quietly educating the consumers and milk-dealers. The writer believes that the scheme offers a peaceful means for accomplishing desirable reforms. The amelioration of our city milk supplies can be best accomplished by encouraging the establishment of a few model dairies, as object lessons for the other dealers and the public. As soon as the public learns to appreciate good milk, it will be willing to pay for it and dealers will be ready to supply the demand."

MUNICIPAL SANITARY IMPROVEMENTS.

Sacramento has just installed a garbage crematory, and the garbage dump which has been so unsightly and unhealthful will be known no more. This is an evidence that Sacramento is awakening to the fact that as the Capital City she should lead in sanitary matters. This she can easily do, for nature has endowed her with all the advantages. She has that greatest of all blessings, an unlimited supply of soft water along the city front. This was as pure as water could be until polluted by the washings of camp, ranch, and town. All that is needed to restore that purity is to filter it through sand. This would add something to the cost of the water, but it would save more in avoiding sickness. The sewage of the city should not be put into the river to further pollute it, but be pumped into the country where a sewage farm could be instituted, and, without producing any nuisance, used to advantage. These things will surely come, for the women of the city are awakening to its need and agitating the subject.

Fresno has voted almost unanimously to issue bonds to improve the sewer, to put in a septic-tank system of sewage destruction, and to buy a ranch on which to use the effluent. With good management the ranch will pay interest on the investment.

Selma, not intending to be left in the march for sanitary improvements, is agitating a new sewer system. In no other way could it invest money where such returns are assured—better health, longer life, fewer deaths.

Sacramento is to be congratulated that its Board of Health has taken the progressive stand to eliminate undrawn refrigerated food from the market. There can be no doubt that it is a source of great danger, as the dead tissues of the intestines offer no great degree of obstruction to the absorption by the flesh of the poisonous gases generated from the excrementitious matter in them. It is sincerely to be hoped that the trustees will stand with the Board of Health.

SANITATION CORRESPONDENCE SCHOOL LECTURES.

Dr. W. R. Batt, of Philadelphia, quarantine officer at large of the Pennsylvania State Board of Health, has opened "a twelve weeks' correspondence course, giving instruction in sanitary science for members of boards of health, health officers, physicians, and nurses." Judging from the first lecture this will be a valuable course of instruction and one that will repay any health officer to take, as it is progressive and up to date.

DIPHTHERIA.

Although as far as we are informed no severe epidemic exists, diphtheria is reported quite extensively throughout the State. This is eminently a contagious disease, and one easily carried by an intermediary. Two cases have been recently reported where the disease was given by pet rabbits. In every case the utmost care should be exercised to *prevent anything* from leaving the sick room that can possibly carry *disease. All pets should be excluded from the house.*

Thorough disinfection should be practiced. Too little of the chosen disinfectant is frequently used to be effective. Not less than 16 ounces of the forty per cent formalin solution to 1,000 cubic feet of space should be used, with a long exposure and under the immediate direction of the health officer.

DANGER IN SHELL FISH.

Dr. D. F. Ragan, the able and efficient Health Officer of San Francisco, in his September report, treats extensively of "Our Marine Products." He shows that the waters of San Francisco bay are polluted by the sewage of the numerous cities and counties surrounding it, and that in the mud "bacteria, protozoa, and various other forms of organic life, both animal and vegetable, thrive abundantly. Strict supervision should be maintained so that no fish, either the small fish, clams, crawfish, shrimps, or oysters, should come from such a bed of filth as I have described." The catching and handling of most of the clams and shrimps are done by the filthy Chinese, and "do not provide a pure or fit product for human consumption." There can be no doubt that much grave and often fatal illness is produced by eating these products, and the doctor rightfully recommends that a strict inspection be instituted and that all clams, shrimps, and small fish taken from near the mud banks be quarantined and not allowed to be brought to the markets of San Francisco. Other cities should follow this lead and exclude from their markets all shell and other fish coming from near the mud banks, which are largely an accumulation of filth. Some time the city will stop polluting and poisoning the waters of the bay.

NOTICE TO HEALTH OFFICERS.

There has been sent from the office of the State Board of Health, to each Health Officer in the State, as far as known, postal cards on which to report cases of contagious or infectious diseases. These reports should contain all cases reported by physicians to the Health Officer, or that are known to exist. Do not send them until the end of the month, unless an epidemic exists, in which case report weekly. The reports should be as correct as it is possible to make them, for from them alone can we know the location and extent of the different epidemic diseases. Be careful to fill blank for "place" and "date." There is room on the card for remarks or suggestions, both of which we gladly receive.

TUBERCULOSIS.

An average of almost one death a day occurred in November in California from tuberculosis, among those who had been here less than one year. What a price to pay for the reputation of California as a health resort! The slight increase of our death-rate is no factor. The pecuniary cost, great as it is, is of little account, as we can produce more wealth. The danger from the many extra sources of infection, though a grave thing, can be overcome by care and disinfection, but the untold sufferings of the poor victims, a needless and cruel thing, can never be properly atoned. Buoyed up by false hopes and anticipations, oftentimes given them by those who know better, many left their homes where there was plenty of fresh air, plenty of food, with friends to care

for them, to go to a strange country without friends or funds, where fresh air and sunshine are free, but where it takes material wealth to get food and care. There is probably no class of patients that suffer more from homesickness or long for the tender ministrations of friends than these, and there certainly is none with whom the balance for life or death is more influenced by the surroundings and mental condition.

California is hospitable and is willing that all should enjoy her health-giving climate who have the means to get good from it, but she objects to those who have not the means to live being sent to her. The objection is not on financial grounds alone, but on humanitarian, for it is cruel in the extreme to send patients suffering from tuberculosis, or any disease, among strangers to die. The following case recently occurred:

A young lady eighteen or twenty years of age, from one of the States of the Middle West, was advised to go to California, where she would speedily get rid of her troublesome cough. It was represented to her that she could get work sufficient to pay all expenses. She arrived with but a few dollars, and of course in her enfeebled condition could not get employment. She hired a cheap room with little sunlight and poor ventilation, and lived on the least possible food. Her disease progressed rapidly, and had it not been for the charity of strangers who sent her home, she would have added one more victim to the list of "died inside one year."

This is not an isolated case, but a sample of what is constantly occurring. The fact that life in the pure open air, with plenty of good food and rest, is the principal thing in the cure of tuberculosis is rapidly gaining ground. The advantage of the California climate is, that one can live out of doors with comfort the year round, but this is of no use where, as in the case of this poor girl, the patient could not get that life, nor the care and food that must go with it.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE BOARD OF HEALTH.

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STATE BUREAU OF VITAL STATISTICS.

N. K. FOSTER, M.D., *State Registrar*..Sacramento | GEORGE D. LESLIE, *Statistician*.....Sacramento

STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*..... .....University of California, Berkeley

VITAL STATISTICS FOR DECEMBER.

Summary.—For December, vital statistics were reported from fifty-three counties with a population estimated very conservatively at 1,723,773. There were 1,788 living births, 2,498 deaths exclusive of stillbirths, and 1,576 marriages, or 3,152 persons married. These figures represent an annual birth-rate of 12.4, a death-rate of 17.4, and a marriage-rate of 11.0, or 22.0 persons married, per 1,000 population. The high death-rate reflects the great mortality in December from pneumonia and other diseases of the respiratory system, and also indicates that the population of California has increased more rapidly since than before 1900, the low estimate for the population found by the Census Bureau method necessarily making the death-rate too high.

The proportion of deaths caused by diseases of the respiratory system (pneumonia, bronchitis, etc.) was considerably greater for December than for November. The leading specific cause of death, as usual, was tuberculosis, with pneumonia and heart disease next in order.

Causes of Death.—The following table gives the number of deaths, by principal classes, reported for California in December and November respectively. For convenience in comparison, the proportion from each class per 1,000 from all causes is likewise shown:

Class.	Number.		Proportion per 1,000.	
	December.	November.	December.	November.
ALL CAUSES	2,498	2,153	1,000.0	1,000.0
General Diseases	741	630	296.6	292.6
Epidemic diseases	125	106	50.0	49.2
Other general diseases	616	524	246.6	243.4
Nervous System	255	236	102.1	109.6
Circulatory System	342	281	136.9	130.5
Respiratory System	388	249	155.3	115.7
Digestive System	188	212	75.3	98.5
Genito-Urinary System	169	127	67.6	59.0
Violence	198	196	79.3	91.0
All Others	217	222	86.9	103.1

The most notable contrast between the proportions for the two months is the rise from 115.7 for November to 155.3 for December in the proportion of deaths caused by diseases of the respiratory system, which includes pneumonia and bronchitis.

The table below gives for California, in December, the number of deaths from the leading specific causes, together with the proportion per 1,000 from all causes:

Disease.	Number.	Proportion.
All Causes	2,498	1,000.0
Tuberculosis	392	156.9
Pneumonia	288	115.3
Heart disease	275	110.1
Cancer	135	54.1
Bright's disease	124	49.7
Apoplexy	107	42.8
Accidental injuries	89	35.6
Diarrhea and enteritis	57	22.8
Bronchitis	49	19.6
Meningitis	49	19.6
Suicides	36	14.4
Typhoid fever	36	14.4
All others	861	344.7

The leading specific disease, as usual, was tuberculosis, which caused over one seventh of all deaths. Next in order were pneumonia and heart disease, each of which caused about one ninth of the total deaths.

NOTES TO REGISTRARS.

New Numbers for Certificates.—The attention of Local Registrars is again drawn to the requirement of the registration law that new series of numbers be started for the certificates of births, marriages, and deaths filed with them each calendar year. The Local Registrar, having transmitted to the State Registrar the certificates for December, 1905, should begin with the number 1 for the certificates of births, marriages, and deaths, respectively, filed with him in January, 1906. Correct numbering of all certificates by calendar years facilitates the tabulations in the State Bureau of Vital Statistics and also expedites the approving of Local Registrars' quarterly accounts for fees.

Pre-Addressed Envelopes for Certificates.—County Recorders J. F. Johnson, Jr., of San Bernardino and I. S. Logan of Riverside have prepared pre-addressed envelopes for distribution to physicians, clergymen, subregistrars, and others required to mail them certificates of births, marriages, and deaths. Other County Recorders and City Health Officers should consider the advisability of supplying similar pre-addressed envelopes to physicians and others in their registration districts. The use of such envelopes prevents certificates from being missent in the mails and, especially by freeing physicians from all confusion regarding the person with whom they should register births, insures a complete registration of births in each district.

Printing Name of County and City on Certificates.—In some instances the certificates printed for certain counties and cities, instead of reading "County of ....." and "City of ....." have had printed on them the name of the county or of both the county and city. This has been done, for example, on the certificates for the counties of Contra

Costa, San Bernardino, and San Diego, and for the cities of Los Angeles, Pasadena, Pomona, Santa Monica, Vallejo, and Woodland. The printing of the name of the county or of the county and city on the certificates saves individuals the trouble of writing the same name over and over again or of putting it on certificates with a rubber stamp, and also prevents the filing of incomplete certificates with the place of birth, marriage, or death carelessly left blank. Local Registrars, in ordering new supplies of certificates, would therefore do well to direct that the name of the county or in some cases of both the city and county be printed on each certificate under the heading Place of Birth, Place of Marriage, or Place of Death.

Here's to the stork,
A most valuable bird,
That inhabits the residence districts.
He doesn't sing tunes,
Nor yield any plumes,
But he helps out the vital statistics.
—*Portland Oregonian.*

Here's to the stork,
A benevolent bird,
Who would bless every home in each district,
But he's sad and forlorn
From evening till morn,
If unable to help with the vital statistics.
—*Iowa Health Bulletin.*

Here's to the stork,
Good, industrious bird,
Who increases birth-rates for all districts,
But works without avail
When bad physicians fail
To register all these vital statistics.

STATE CONTROL OF TUBERCULOSIS.

CONTRIBUTED BY A. B. NYE.

Looming up before the State of California, and but a very short distance ahead in the natural line of advance, is the momentous question of a right public policy in relation to tuberculosis. It does not appear that it will be possible to avoid meeting it, nor should we desire to do so when we stop to consider all that is at stake. Our only solicitude should be to meet it right, which means in the manner that will produce the largest results in proportion to the effort expended. The question of ways and means is one to interest every citizen and every taxpayer, because the battle for the extirpation of consumption will be a long one and the expense will be very great. On its medical side a question for physicians alone, tuberculosis also presents social, industrial, and financial aspects which are quite as well worthy of attention, and these must appeal to all classes of intelligent persons.

Without sufficient preliminary discussion, and in a state of the public mind altogether unpropitious for satisfactory decision of so large a question, the attempt was made at the last session of the Legislature to

commit us to the policy of a large State hospital for tuberculous patients. Two hundred thousand dollars was the amount of the appropriation proposed, and on the part of the advocates of the measure there appeared to be no possible doubt that this would be the wisest first step which could be taken. Indeed, there seemed to be, in some quarters, an easy assumption that if we could only have a State institution for consumptives the whole problem would be solved.

But for several reasons, and especially because of the financial one, the establishment of a new State institution is always a serious matter, and in a State already so overburdened with institutions as California is, it ought not to be undertaken until it has been made very certain that in no other way could the same amount of good be accomplished. It is not the initial expense which is to be dreaded, but rather the consequences which are to come after.

The fact that other commonwealths have established hospitals for consumptives does not of itself settle the question whether institutional treatment would be the best method of dealing with tuberculosis in California. What other States have done is experimental only, and no State has undertaken to care for all its consumptives in one hospital or in several. Most of these State experiments have been commenced on a small scale, and where there is one sanatorium established by the commonwealth, there are generally twenty which owe their existence to private enterprise or to municipal action. In our penal and reformatory efforts and in our attempts to care for the dependent classes, we have suffered a good deal from institutionalism in California, and it is not a good idea to encourage at the outset in dealing with the problem of tuberculosis.

Let us look for a moment at the dimensions of the problem as measured merely by the number of persons suffering from the disease. A careful estimate based on the latest figures of the State Board of Health gives as the number of deaths per year from tuberculosis in California an average of 3,500. The ordinary run of the disease is said to be three years, which renders it easy to figure out that the total number of persons who are at any one time afflicted with the disease and destined to die of it must be 10,500. But at least twice as many persons suffer from tuberculosis as actually perish of it, and therefore the total number of consumptives must be, at a moderate estimate, 21,000.

Of course no such number of patients could be accommodated in any one hospital, even if all consumptives could be compelled to leave their homes and undergo institutional treatment. The mere transportation of such numbers of tuberculous patients, in a State so large as California, would be a crushing expense, and their traveling would create additional and unnecessary dangers for the portion of the population not yet afflicted. At best, a State hospital for consumptives could be only a demonstration of methods—an illustration showing how the sanatoria conducted by private persons and by local authorities ought to be managed—and it has not yet been made clear that we need a State institution even for that purpose.

Unless the present writer—who is not an expert and offers these ideas merely as the suggestions of a layman—is greatly mistaken, the more one digs down into underlying reasons and causes the more he is *likely to become satisfied* that what we need for the solution of the

tuberculosis problem is not so much a State institution as a State policy. The main consideration is this: Tuberculosis is an ever-present problem with each community and with each family and individual. The specific origin of the disease may be one, but the causes of its prevalence are many and have a direct connection with all our social usages and habits. Tuberculosis is a form of punishment for many of our social sins—for unsanitary towns and bad rural dwellings, for crowded tenements and personal vices, for poverty and poor nutrition, for ill-ventilated workshops and the greed of capital. But the master cause of all is lack of intelligence on the part of the people who put themselves in the way of this great danger. If this be so, and there seems to be no doubt of it, what is needed more than anything else is a campaign of education which will teach people to realize that they can not commit the sin and escape its penalty. It is a case in which the whole community must be aroused to mend its ways, and in the doing of this both voluntary effort and a well-directed State policy are needful.

No doubt there will and should be public sanatoria, and each county and city should be required to maintain its own under the regulation of State laws and probably subject to State supervision. In the long run the results will be better if each community is required to care for the victims of its own public sins. If such victims could be thrust off upon the bounty of the State, the community could, to a degree, evade responsibility and ignore the consequences of its criminal neglect; but it could not so well do it if those consequences should be kept continually under the eyes of its own people. Moreover, with public dispensaries and local hospitals, most of the patients would never leave their own homes for any long period of time, the necessary public expense would be kept at a minimum, and there would be avoided the great evil of creating a new class of the unemployed—the homeless discharged patients of a large State institution. The reports show that already this evil exists in connection with institutions for consumptives in other States.

But whatever our conclusions may be with reference to the establishment of a State hospital for tuberculous patients, there can be no denial of the public duty to take up and deal with the great problem whose existence has suggested the action proposed at the last session of the Legislature. Every State in the Union has cause enough to do something, but California most of all, for our reputation for climate has brought such a migration of consumptives that the death-rate from that disease has gone above the average, and upon the map of States showing where the scourge is worst California now appears as a very black spot. Every consideration of safety urges us to cleanse it.

UNDRAWN POULTRY.

The Trustees of Sacramento have passed, and the Mayor has approved, the following ordinance:

SECTION 1. It shall be unlawful for any person, firm, or corporation, within the limits of the City of Sacramento, to sell, offer or expose for sale, any slaughtered poultry, fish, game, or any animal, used for food purposes, refrigerated or otherwise, which has not been properly drawn and prepared by removing the viscera at the time of slaughter.

SEC. 2. *Any person* or persons, firm or corporation, violating any of the pro-

visions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding one hundred dollars or by imprisonment in the city prison not to exceed fifty days, or by both such fine and imprisonment.

In doing this Sacramento has gained the distinction of being the first city of the State, if not in the country, to exclude from its markets, poultry, fish, game, or animals that have not been properly cleaned at the time of slaughter.

The Board of Health of Sacramento, to whom belongs the honor of securing this legislation, is trying to induce the other cities of the State to adopt the same or a similar ordinance. In this effort we sincerely hope it will succeed, and that it will soon be impossible, in California, for one to be served with flesh of any kind that has been allowed to retain the decomposing filth of its intestines.

Many tons of refrigerated poultry, spoiled by this decomposition, are destroyed each year, but many more tons are not found by the health officers and are sold and eaten. Much of this is consumed in 25-cent (or cheaper) chicken dinners, so freely advertised in the cities.

That these are responsible for many deaths and much suffering no observant person can doubt. As soon as death takes place, the power of the digestive tract to resist the penetration of the putrefactive gases and ptomaine poisons which are generated therein is gone, and they at once enter the flesh. Refrigeration does not entirely stop the decay nor the absorption of its products, and as soon as the frost is removed both are renewed with increased vigor. There is no good reason why the viscera should not be removed at once. The bird may look a little plumper and may weigh more, but it will be no fatter nor have more flesh, and if properly cleaned and dressed will keep longer and better and be free from the dangerous poisons generated in the intestines.

As long as California cities allow the unloading upon them of the undrawn refrigerated poultry—poultry that has been bought when and where it was cheap and kept for months until the price is high—they will continue to have in the markets this decomposing, disease-breeding food. There will be plenty of people to sell it and plenty more to buy. It is the duty of the local governments to protect their people, sometimes from themselves, and this is one of the cases where the city government should accord such protection.

NOTICE TO HEALTH OFFICERS.

Health officers are urged to send, the first of each month, the report cards giving the number of cases of contagious or infectious diseases occurring within their jurisdiction.

The State law requires that each health officer make these reports, and it should be as conscientiously obeyed as any other law. It is the only means by which we can know the health conditions of the State. Carefully fill in spaces for "place" and "month," and always sign your name.

The space for "remarks" should always be used. There is something you can say about conditions existing, or work you are doing. These reports are kept on file and will be a history of the advance in hygiene *of California.*

Thirty-three health officers have reported on the cards sent them for

the reporting of contagious and infectious diseases. Diphtheria is reported from the largest number of places, 14; next in order comes influenza, 12; pneumonia and typhoid, 10 each; scarlet fever, 9; croup, 6; whooping-cough, 5; measles, 4. In the number of cases reported diphtheria is second only to influenza and exists in all parts of the State. A close watch should be kept by all health officers and all cases carefully isolated and thorough disinfection practiced.

PROTECT THE MILK.

The Board of Health of Fresno is taking a step in advance in urging the passage of an ordinance requiring all milk sold in that city in quantities of less than one gallon shall be in sealed bottles. We often see the milkman take from the seat beside him the measure, where it has been exposed since his last customer was served, and in the face of a strong wind which has filled the air with all conceivable filth, pour out the milk that is to be used perhaps by a sickly baby. Few of us fully appreciate the dangers of dust, but the light is breaking in, and some time we will refuse to drink milk or eat food that has been unnecessarily exposed to it.

AN ACTIVE HEALTH OFFICER.

Dr. Clark, the health officer of the progressive and prosperous town of Willits, is urging an extension of the sewer system and the installation of a septic tank. There is nothing that adds so much to the desirability of a town as a place of residence as a perfect sewer system, including the destruction of the sewage matter. Every one prefers to live where health conditions are good, and this can not be where the waste from toilets, sinks, or stables is allowed to spread uncared for on the surface or to collect in pools. A town can make no better investment than in a thoroughly up-to-date sewer system.

WOMEN AS MILK INSPECTORS.

The latest thing in dairy inspection in California is that started by the club women of Los Angeles. The proposition is for the women to inspect the dairies which furnish them milk, and insist that they be kept up to the standard. If they will do this, making their requirements within the bounds of reason, and refuse the milk if they are not complied with, we shall see a great cleaning up, and better milk.

A SUBSTITUTE FOR THE OYSTER.

"The importance of the oyster as a food and as a factor in the etiology of typhoid fever renders a possible substitute for it of medical interest. The abalone is a giant snail, weighing from one to two pounds, living in practically unlimited quantities in the deep waters of the ocean, and easily gathered along the entire coast of central and lower California. The flesh is a nutritious and wholesome article of food, highly esteemed by the Chinese and Japanese, but as yet very little used in the United States outside of California. The drying process and the original canning method yield a tough product, but a process has recently been discovered by which these giant snails can be canned and made as delicate as the oyster. They are used in a similar way for food, but have the decided advantage over the oyster that when gathered

the viscera can be detached from the muscular parts by the single stroke of a knife. The source being on less populated coasts, offers less danger of typhoid contamination than does that of the oyster, and, further, we understand that there is no necessity for fattening the abalone in creeks, as is the case with the oyster. The points are in favor of the new mollusk and seem to give it large possibilities as a food product."—*The Journal of the American Medical Association.*

The continued and increased pollution with sewage of the waters in which the oysters grow in California is a source of constant danger, and will, in the near future, cause that mollusk to be looked upon with much suspicion, if it does not drive it from the market. The condition is as bad, or possibly worse, in the East, and numerous epidemics of typhoid fever have been traced to this source. While in California no epidemic has resulted from the shell fish, no doubt many cases scattered throughout the State have come from them. If the abalone can be prepared so as to take the place of the oyster and clam, it may be the means of saving many lives.

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PUBLIC HEALTH ASSOCIATION.

The annual meeting of the California Public Health Association will be held at San Francisco, at the time of the meeting of the California State Medical Society—probably the day before. Watch the next issue for full account. This Association is for all health officers and others interested in sanitation, and all are urged to come. *No dues.*

STATISTICS OF DEATHS IN 1905.

Summary.—Under the law for the registration of vital statistics which took effect in May, 1905, returns of varying completeness were received from all the fifty-seven counties in the State except only Humboldt. Estimated conservatively by the Census Bureau method with slight modifications, the population of the fifty-six counties in 1905 is 1,755,599. For the last six months of the year, including scattering returns for earlier months, there were reported altogether 12,236 deaths, exclusive of stillbirths not tabulated, giving an annual death-rate of only 13.9 per 1,000 population.

For Northern California, where, however, the returns were not particularly complete, the death-rate was 10.1 as compared with 14.3 for Central California and 15.2 for Southern California.

Of the minor geographic divisions into which the several counties have been grouped for convenience in tabulation, the six counties of Southern California other than Los Angeles (*i. e.*, Santa Barbara, Ventura, San Bernardino, Orange, Riverside, and San Diego) show the highest death-rate, 16.1 per 1,000 population, followed by 15.1 for San Francisco, 14.9 for the coast counties from Santa Clara and Santa Cruz to San Luis Obispo, inclusive, 14.6 for Los Angeles, and 14.2 for the interior counties from Yolo, Sacramento, and El Dorado to and including Kern. The bay counties other than San Francisco (Alameda, Contra Costa, Marin, and San Mateo), for which the death-rate is 12.4, constitute the only

division besides the coast and interior counties of Northern California with a rate below the State average of 13.9, but in all these geographic divisions there are counties for which the returns seem incomplete.

The relatively high death-rates for Southern California are due largely to deaths of newly arrived consumptives, and partly also to the "Bennington" disaster. If these exceptional deaths were excluded, the death-rate for Southern California would be reduced from 15.2 to 14.1, for Los Angeles from 14.6 to 13.8, and for the other counties from 16.1 to 14.6 per 1,000 population.

The death-rate for Northern and Central California together is 13.6, or somewhat less than the corrected rate for Southern California. The rate for the coast counties is 13.9 against 12.8 for the interior counties, the rate being higher for the coast counties mainly because of the relatively great mortality usual in a metropolis like San Francisco.

Analysis of causes of death in different localities reveals interesting contrasts between the several main and minor geographic divisions in the relative prevalence of different classes of diseases. The proportion of all deaths due to epidemic diseases is decidedly highest for the interior counties of Northern California, but is also considerably above the State average for the interior counties of Central California and for the coast counties of Northern and Central California, exclusive of San Francisco and the other bay counties. The proportions of total deaths caused by diseases of the circulatory system—heart disease and kindred complaints—are considerably above the average for the State for San Francisco and the other bay counties, particularly for the metropolis itself. In Southern California, especially in Los Angeles, the proportion of deaths from all causes due to other than epidemic general diseases, the class which includes tuberculosis, is very much higher than the average proportion for all California.

Tuberculosis caused 1,813 deaths, or 14.8 per cent of the total 12,236 reported. The corresponding per cent is 21.4 for Los Angeles, 17.0 for the other six counties of Southern California, and 15.0 for San Francisco, the per cent for every other geographic division being below the State average. The per cent was 19.7 for the seven counties south of Tehachapi, against only 13.2 for the rest of the State.

However, deaths from tuberculosis in Southern California occur largely among newly arrived consumptives, while in Northern and Central California considerable numbers of native Californians and old-time residents fall victims to the "great white plague." Thus, 25.8 per cent of the tuberculosis victims in Southern California had lived in the State less than a year, and altogether 55.7 per cent had lived here less than 10 years, the corresponding per cents for the entire State being 11.9 and 31.9 and for Northern and Central California together being 4.3 and 19.2 respectively. In fact, of all who died of tuberculosis in Southern California, 4.1 per cent had been in the State less than a month, altogether 12.7 per cent less than 3 months, and altogether 17.3 per cent less than 6 months. On the other hand, the per cent of native Californians among tuberculosis victims is 35.7 for Northern and Central California together, against 28.2 for the State as a whole and merely 13.4 for Southern California. Similarly, 35.5 per cent of all tuberculosis victims in Northern and Central California had lived in *the State at least* 10 years, in contrast with 30.0 for the entire State and *only 19.5 for the seven* counties south of Tehachapi.

Geographic Divisions.—For convenience in tabulation, the fifty-seven counties of California have been grouped in three main and eight minor geographic divisions, as follows, the counties in each group being arranged alphabetically for the sake of ready reference:

NORTHERN CALIFORNIA.

Coast Counties.

Del Norte	Lake	Napa	Trinity
Humboldt	Mendocino	Sonoma	

Interior Counties.

Butte	Modoc	Shasta	Sutter
Colusa	Nevada	Sierra	Tehama
Glenn	Placer	Siskiyou	Yuba
Lassen	Plumas		

CENTRAL CALIFORNIA.

San Francisco
(City and County)

Other Bay Counties.

Alameda	Contra Costa	Marin	San Mateo

Coast Counties.

Monterey	San Luis Obispo	Santa Clara	Santa Cruz
San Benito			

Interior Counties.

Alpine	Inyo	Merced	Stanislaus
Amador	Kern	Mono	Tulare
Calaveras	Kings	Sacramento	Tuolumne
El Dorado	Madera	San Joaquin	Yolo
Fresno	Mariposa	Solano	

SOUTHERN CALIFORNIA.

Los Angeles

Other Counties.

Orange	San Bernardino	Santa Barbara	Ventura
Riverside	San Diego		

Death-rates.—Returns of varying completeness were received under the new law for the registration of vital statistics from all the fifty-seven counties in the State except only Humboldt, the population of which has of course been excluded in the calculation of all death-rates. Though the present registration law took effect in May, comparatively few returns were received for May and June, as the law was not in operation generally throughout the State before July 1.

In the last six months of 1905, including scattering returns for earlier months, there were reported altogether 12,236 deaths, exclusive of still-births not tabulated. The population of California in 1905 has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905, and for the three principal cities arbitrary estimates have been made because of their exceptionally rapid growth. The estimate for San Francisco in 1905 is 450,000, for Los Angeles, 180,000, and for Oakland, 90,000.

The following table shows for each geographic division indicated above the population as enumerated in 1900 and as estimated for 1905,

the deaths reported for the last six months of 1905, and the annual death-rate per 1,000 population:

Geographic Division.	Population.		Deaths: Last Six Months, 1905.	Annual Death-rate per 1,000 Population.
	Enumerated, 1900.	Estimated, 1905.		
THE STATE*	1,457,949	1,755,599	12,236	13.9
Northern California*	229,453	240,588	1,219	10.1
Coast counties*	88,204	92,863	480	10.3
Interior counties	141,249	147,725	739	10.0
Central California	924,285	1,105,090	7,909	14.3
San Francisco	342,782	450,000	3,405	15.1
Other bay counties	176,039	216,127	1,344	12.4
Coast counties	124,378	132,371	984	14.9
Interior counties	269,970	295,078	2,176	14.2
Southern California	304,211	409,921	3,108	15.2
Los Angeles	170,298	259,000	1,893	14.6
Other counties	133,913	150,921	1,215	16.1
Northern and Central California*	1,153,738	1,345,678	9,128	13.6
Coast counties*	731,403	891,361	6,213	13.9
Interior counties	422,335	454,317	2,915	12.8

The table shows that for fifty-six counties with an estimated population of 1,755,599 the 12,236 deaths registered in the last six months of 1905 indicate an annual death-rate of only 13.9 per 1,000 population.

Of the main geographic divisions, Northern California shows the lowest death-rate, 10.1, and Southern California the highest, 15.2, as compared with 14.3 for Central California, and 13.9 for the entire State.

Of the minor divisions, both the coast and interior counties of Northern California have death-rates, 10.3 and 10.0 respectively, which are considerably below the State average. There is a similar showing besides only for the bay counties other than San Francisco (Alameda, Contra Costa, Marin, and San Mateo), with a death-rate of 12.4.

The highest death-rate, 16.1, is for Southern California, exclusive of Los Angeles (*i. e.*, Santa Barbara, Ventura, San Bernardino, Orange, Riverside, and San Diego counties). In descending order, the death-rates are 15.1 for the City and County of San Francisco, 14.9 for the coast counties of Central California, comprising Santa Clara, Santa Cruz, San Benito, Monterey, and San Luis Obispo counties, 14.6 for Los Angeles county, and 14.2 for the interior counties of Central California extending from Yolo, Sacramento, and El Dorado in the north to and including Kern in the south.

In explanation of the low death-rates for both the coast and interior counties of Northern California, it should be noted that the returns were not particularly complete for this part of the State.

Similarly, the relatively high death-rates for Los Angeles and other counties of Southern California are due largely to the deaths of recent residents from tuberculosis,† and partly, also, to the sixty-five fatalities

* Exclusive of Humboldt County (population enumerated in 1900, 27,104, and estimated for 1905, 28,922) for which alone no vital statistics at all were reported.

† The deaths from tuberculosis of persons who had resided in the State less than a year number 158 for Southern California—106 for Los Angeles, and 52 for the other six counties.

from the "Bennington" disaster in San Diego harbor. Thus, if these exceptional deaths were excluded, the death-rate for Southern California would be reduced from 15.2 to 14.1, for Los Angeles from 14.6 to 13.8, and for the other counties from 16.1 to 14.6.

The death-rate for Northern and Central California together is 13.6, or somewhat less than the corrected rate for the seven counties of Southern California. The rate for the coast counties from Del Norte to San Luis Obispo, inclusive, is 13.9 against 12.8 for the interior counties from Siskiyou and Modoc to Kern. That the death-rate is higher for the coast than for the interior counties is due mainly to the relatively great mortality usual in a metropolis like San Francisco.

Causes of Death.—The following table gives the number of deaths by principal classes for the State as a whole, and also for Northern, Central, and Southern California separately. For convenience in comparison, the proportion from each class per 1,000 deaths from all causes is likewise shown:

Class.	Deaths in Last Six Months of 1905.				Proportion per 1,000 Deaths from All Causes.			
	The State.	Geographic Division.			The State	Geographic Division.		
		Northern.	Central.	Southern.		Northern.	Central.	Southern.
All Causes	12,236	1,219	7,909	3,108	1,000.0	1,000.0	1,000.0	1,000.0
General Diseases	3,695	359	2,268	1,068	302.0	294.5	286.8	343.6
Epidemic diseases	685	116	403	166	56.0	95.2	51.0	53.4
Other general diseases	3,010	243	1,865	902	246.0	199.3	235.8	290.2
Nervous System	1,283	144	833	306	104.8	118.1	105.3	98.5
Circulatory System	1,547	131	1,076	340	126.4	107.5	136.0	109.4
Respiratory System	1,214	134	816	264	99.2	109.9	103.2	85.0
Digestive System	1,205	116	804	285	98.5	95.2	101.7	91.7
Genito-Urinary System	779	53	505	221	63.7	43.5	63.8	71.1
Childbirth	122	8	80	34	10.0	6.5	10.1	10.9
Early Infancy	410	28	284	98	33.5	23.0	35.9	31.5
Old Age	323	65	186	72	26.4	53.3	23.5	23.2
Violence	1,254	131	776	347	102.5	107.5	98.1	111.6
Ill-defined Diseases	256	41	176	39	20.9	33.6	22.3	12.6
All others	148	9	105	34	12.1	7.4	13.3	10.9

Comparison of the proportions reveals interesting contrasts between the three main geographic divisions in the relative prevalence of different classes of diseases. Thus, in Northern California, 95.2 of every 1,000 deaths were caused by epidemic diseases, as compared with only 56.0 for the entire State. Diseases of the nervous and respiratory systems and deaths from old age are also relatively more prevalent in Northern California than in the State as a whole. In Central California, the proportion is above the general average especially for diseases of the circulatory system (136.0 per 1,000 for this division against 126.4 for the State) and also in less degree for diseases of the respiratory and digestive systems. In Southern California the proportion is particularly high for other than epidemic general diseases, the class which includes tuberculosis, the proportion being 290.2 per 1,000 for this division against only 246.0 for the State as a whole. Southern California also exceeds the State in the proportion of all deaths caused by diseases of the genito-urinary system or due to various forms of violence.

The analysis of causes of death in different localities is carried a step farther in the table below, which gives corresponding figures for the eight minor geographic divisions:

Class.	Northern California.		Central California.				Southern California.	
	Coast Counties.	Interior Counties.	San Francisco	Other Bay Counties.	Coast Counties.	Interior Counties.	Los Angeles.	Other Counties.
Deaths in Last Six Months of 1906.								
ALL CAUSES	480	739	3,405	1,344	984	2,176	1,893	1,215
General Diseases	139	220	998	342	289	639	702	366
Epidemic diseases	55	81	119	57	71	156	101	65
Other general diseases	104	139	879	285	218	483	601	301
Nervous System	82	62	290	165	140	238	162	144
Circulatory System	52	79	538	184	121	233	220	120
Respiratory System	46	88	399	130	81	206	180	84
Digestive System	42	74	345	153	96	210	182	103
Genito-Urinary System	20	33	229	97	67	112	142	79
Childbirth	1	7	23	14	16	27	18	16
Early Infancy	8	20	139	50	19	76	69	29
Old Age	36	29	70	25	31	60	26	46
Violence	40	91	285	121	90	280	155	192
Ill-defined Diseases	11	30	36	45	23	72	19	20
All others	3	6	53	18	11	23	18	16
Proportion per 1,000 Deaths from All Causes.								
ALL CAUSES	1,000.0	1,000 0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
General Diseases	289.6	297.7	293.1	254.5	293.7	293.7	370.9	301.2
Epidemic diseases	72.9	109 6	34.9	42.4	72.1	71.7	53.4	53.5
Other general diseases	216.7	188.1	258.2	212.1	221.6	222.0	317.5	247.7
Nervous System	170.8	83.9	85.2	122.8	142.3	109.4	85.6	118.5
Circulatory System	108.3	106 9	158.0	136.9	123 0	107.1	116.2	98.8
Respiratory System	95.8	119.1	117.2	96.7	82.3	94.7	95.1	69.1
Digestive System	87.5	100.1	101.3	113.8	97 5	96.5	96.2	84.8
Genito-Urinary System	41.7	44.7	67.3	72.2	68.1	51.5	75.0	65.0
Childbirth	2.1	9.5	6.7	10.4	16.3	12.4	9.5	13.2
Early Infancy	16.7	27 1	40.8	37.2	19 3	34.9	36.4	23.9
Old Age	75.0	39.2	20.5	18.6	31.5	27.5	13.7	37.8
Violence	83.3	123.1	83.7	90.0	91.4	128.7	81.9	158.0
Ill-defined Diseases	22.9	40.6	10 6	33.5	23.4	33.1	10.0	16.5
All others	6.3	8.1	15.6	13.4	11.2	10.5	9.5	13.2

Study of this and the preceding table brings out notable points about causes of death in the eight minor geographic divisions, as follows:

In comparison with the average proportions for the State as a whole, the proportions for the coast counties of Northern California are particularly high in the case of diseases of the nervous system and deaths from old age, the proportions per 1,000 total deaths being respectively 170.8 and 75.0 for this group of counties against general averages of 104.8 and 26.4 for the State. It should be remembered, however, that many of the deaths reported for this geographic division occurred at the Mendocino and Napa State Hospitals. In this division the proportion of all deaths caused by epidemic diseases is also considerable, being 72.9 against 56.0 for California as a whole.

For the interior counties of Northern California the proportions are particularly high for epidemic diseases (the proportion per 1,000 deaths being 109.6 as compared with 56.0 for the State), for diseases of the respiratory system (119.1 for this division against an average proportion of 99.2 for all California), and for violence (123.1 for this division against 102.5 for the entire State).

San Francisco exceeds the State especially in the proportion of all deaths caused by diseases of the circulatory system (158.0 against *126.4) and of the* respiratory system (117.2 against 99.2 per 1,000 *deaths).*

In the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) the proportions are above the general average particularly for diseases of the nervous system (122.8 against 104.8), of the digestive system (113.8 against 98.5), and also of the circulatory system (136.9 against 126.4).

The coast counties of Central California, from Santa Clara and Santa Cruz to San Luis Obispo inclusive, surpass the State especially in the proportions of all deaths caused by epidemic diseases (72.1 in contrast with 56.0) and by diseases of the nervous system (142.3 in contrast with 104.8 for the State).

The interior counties of Central California from Yolo, Sacramento, and El Dorado to and including Kern, also show a considerable proportion for epidemic diseases, 71.7 per 1,000 deaths from all causes, and exceed besides in deaths by violence, the proportion for this division being 128.7 against 102.5 for the State as a whole.

Los Angeles County surpasses the State particularly in the proportion for other than epidemic general diseases, the class which includes tuberculosis, the proportion per 1,000 total deaths being 317.5 for this county against 246.0 for California as a whole. The proportion for diseases of the genito-urinary system in Los Angeles, 75.0, is also somewhat above the average of 63.7 for the entire State.

In the remaining six counties of Southern California, also, the proportion for other than epidemic diseases is relatively high, 247.7 per 1,000 total deaths, as is besides the proportion for violence (158.0 against 102.5 for the State). However, one third (65 of 192) of the deaths from violence in this geographic division resulted from the explosion on the U. S. S. "Bennington" in San Diego harbor.

Tuberculosis.—The following table shows the number and per cent of total deaths caused by tuberculosis in each main and minor geographic division:

Geographic Division.	Total Deaths.	Tuberculosis.	All Other Causes.	Per Cent From—	
				Tuberculosis.	All Other Causes.
THE STATE	12,236	1,813	10,420	14.8	85.2
Northern California	1,219	138	1,081	11.3	88.7
Coast counties	480	69	411	14.4	65.6
Interior counties	739	69	670	9.3	90.7
Central California	7,909	1,063	6,846	13.4	86.6
San Francisco	3,405	511	2,894	15.0	85.0
Other bay counties	1,344	149	1,195	11.1	88.9
Coast counties	984	135	849	13.7	86.3
Interior counties	2,176	268	1,908	12.3	87.7
Southern California	3,108	612	2,496	19.7	80.3
Los Angeles	1,893	405	1,488	21.4	78.6
Other counties	1,215	207	1,008	17.0	83.0
Northern and Central California	9,128	1,201	7,927	13.2	86.8
Coast counties	6,213	864	5,349	13.9	86.1
Interior counties	2,915	337	2,578	11.6	88.4

In the State there were 1,813 deaths from tuberculosis, or 14.8 per cent of the total 12,236 reported. The per cent of all deaths due to

tuberculosis is highest, 21.4, for Los Angeles; next 17.0, for the other six counties of Southern California; and next, 15.0, for San Francisco. The per cent is below the average for the State in both divisions of Northern California and in the three divisions of Central California outside the metropolis. The per cent was 19.7 for the seven counties of Southern California against only 13.2 for Northern and Central California.

It should be noted, however, that deaths of newly arrived consumptives are much more numerous in Southern California than in the rest of the State. This appears clearly from the following table showing the length of residence in California of those who died of tuberculosis in the last six months of 1905:

Geographic Division.	Total.	Length of Residence.				
		Under 1 Year.	1 to 9 Years.	10 Years and Over	Life.	Unknown.
Numbers.						
THE STATE	1,813	210	362	545	511	185
Northern California	138	6	16	47	52	17
Coast counties	69	3	6	22	26	12
Interior counties	69	3	10	25	26	5
Central California	1,063	46	163	379	377	98
San Francisco	511	16	68	194	180	53
Other bay counties	149	5	22	55	60	7
Coast counties	135	9	22	35	61	8
Interior counties	268	16	51	95	76	30
Southern California	612	158	183	119	82	70
Los Angeles	405	106	130	75	41	53
Other counties	207	52	53	44	41	17
Northern and Central California	1,201	52	179	426	429	115
Coast counties	864	33	118	306	327	80
Interior counties	337	19	61	120	102	35
Per cents.						
THE STATE	100.0	11.6	20.0	30.0	28.2	10.2
Northern California	100.0	4.3	11.6	34.1	37.7	12.3
Coast counties	100.0	4.3	8.7	31.9	37.7	17.4
Interior counties	100.0	4.3	14.5	36.2	37.7	7.3
Central California	100.0	4.3	15.3	35.7	35.5	9.2
San Francisco	100.0	3.1	13.3	38.0	35.2	10.4
Other bay counties	100.0	3.3	14.8	36.9	40.3	4.7
Coast counties	100.0	6.7	16.3	25.9	45.2	5.9
Interior counties	100.0	6.0	19.0	35.4	28.4	11.2
Southern California	100.0	25.8	29.9	19.5	13.4	11.4
Los Angeles	100.0	26.2	32.1	18.5	10.1	13.1
Other counties	100.0	25.1	25 6	21.3	19.8	8.2
Northern and Central California	100.0	4.3	14.9	35.5	35.7	9.6
Coast counties	100.0	3.8	13.7	35.4	37.8	9.3
Interior counties	100.0	5.6	18.1	35.6	30.3	10.4

The table shows that 25.8 per cent of those who died of tuberculosis in Southern California had lived in the State less than a year, the per cent being 26.2 for Los Angeles and 25.1 for the other six counties. The corresponding figure for Northern and Central California together is only 4.3, and that for the entire State is 11.6 per cent.

In fact, many of the tuberculosis victims in Southern California had *been in the State only* a few months. The length of residence in months

of those who died of tuberculosis in Los Angeles and the other counties of Southern California after having been in the State less than a year is shown in the table which follows:

Geographic Division.	Total Under 1 Year.	Length of Residence.			
		Under 1 month.	1 or 2 months.	3 to 5 months.	6 to 11 months.
Numbers.					
SOUTHERN CALIFORNIA	158	25	53	28	52
Los Angeles	106	16	30	22	38
Other counties	52	9	23	6	14
Per cents.					
SOUTHERN CALIFORNIA	25.8	4.1	8.6	4.6	8.5
Los Angeles	26.2	4.0	7.4	5.4	9.4
Other counties	25.1	4.3	11.1	2.9	6.8

This table shows that of all who died of tuberculosis in Southern California 4.1 per cent had been in the State less than a month, altogether 12.7 per cent less than 3 months, and altogether 17.3 per cent less than 6 months. In Los Angeles 16.8 per cent, and in the other counties 18.3 per cent, of the total victims of tuberculosis had lived in California less than half a year.

Moreover, while in the entire State 31.6, and in Northern and Central California together only 19.2 per cent, of all tuberculosis victims had lived here less than 10 years, in Southern California 55.7 per cent had lived in the State this length of time, the corresponding per cent being 58.3 for Los Angeles, and 50.7 for the other six counties.

Native Californians form a considerable proportion of all tuberculosis victims in Northern and Central California. The per cent of native Californians among all tuberculosis victims is 37.7 for Northern California and 35.5 for Central California, or 35.7 for both divisions together, against 28.2 for the entire State and only 13.4 for Southern California. Similarly, deaths of old-time residents from tuberculosis are relatively more numerous in Northern and Central California than south of Tehachapi. Thus, the per cent of all tuberculosis victims who had lived here at least 10 years is 35.7 for Central California, 34.1 for Northern California, and 35.5 for both divisions together, in contrast with 30.0 for the State as a whole, and only 19.5 for Southern California.

VITAL STATISTICS FOR JANUARY, 1906.

Summary.—The vital statistics reported for January, 1906, are as follows: Living births, 1,902; deaths, exclusive of stillbirths, 2,670; and marriages, 1,532, or 3,064 persons married. The population of the State, except Humboldt County, for which no returns have yet been received, is 1,853,561 in 1906, as estimated by the Census Bureau method with certain modifications heretofore explained. On the basis of this population, the vital statistics reported for January give the following annual rates: Living births, 12.3; deaths, 17.4; and marriages, 9.9, or 19.8 persons married, per 1,000 population.

Tuberculosis, as ever, was the principal cause of death, with pneumonia leading heart disease for second place, as usual in the winter months.

Causes of Death.—The following table gives the number of deaths, by principal classes, reported for California in January. For convenience in comparison, the proportion from each class per 1,000 deaths from all causes is likewise shown:

Class.	Number.	Proportion.
ALL CAUSES	2,670	1,000.0
General Diseases	773	289.5
Epidemic diseases	156	58.4
Other general diseases	617	231.1
Nervous System	255	95.5
Circulatory System	362	135.6
Respiratory System	468	175.3
Digestive System	188	70.4
Genito-Urinary System	176	65.9
Violence	190	71.2
All others	258	96.6

The proportions are highest for other than epidemic general diseases, 231.1, diseases of the respiratory system, 175.3, and diseases of the circulatory system, 135.6, per 1,000 total deaths. The specific causes of death most prominent in these leading classes are respectively tuberculosis, pneumonia, and heart disease.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE BOARD OF HEALTH.

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VITAL STATISTICS FOR FEBRUARY.

Summary.—The vital statistics reported for February are as follows: Living births, 1,762; deaths, exclusive of stillbirths, 2,223; and marriages, 1,231, or 2,462 persons married. On the basis of an estimated population of 1,853,561 for the State, exclusive of Humboldt County not yet reporting, the returns for February give the following annual rates: Births, 12.9; deaths, 15.6; and marriages, 8.6, or 17.2 persons married, per 1,000 inhabitants. The corresponding rates for January were: Births, 12.4; deaths, 17.4; and marriages, 9.9, or 19.8 persons married. So February, as compared with January, shows a slight increase in the birth-rate, with decreases in the rates for deaths and marriages, especially for deaths.

As usual, tuberculosis was the principle cause of death in California. While in January pneumonia led heart disease for second place, in February the proportion of all deaths caused by diseases of the respiratory system was considerably less than that for diseases of the circulatory system.

Causes of Death.—The following table gives the number of deaths, by principal classes, reported for California in January and February, respectively. For convenience in comparison, the proportion from each class per 1,000 deaths from all causes is likewise shown:

Class.	Number.		Proportion per 1,000.	
	January	February.	January.	February.
ALL CAUSES	2,670	2,223	1,000.0	1,000.0
General Diseases	773	700	289.5	314.9
Epidemic diseases	156	130	58.4	58.5
Other general diseases	617	570	231.1	256.4
Nervous System	255	209	95.5	94.0
Circulatory System	362	321	135.6	144.4
Respiratory System	468	278	175.3	125.1
Digestive System	188	146	70.4	65.7
Genito-Urinary System	176	151	65.9	67.9
Violence	190	193	71.2	86.8
All Others	258	225	96.6	101.2

In each month, especially February, the proportion is highest for other than epidemic general diseases, the class which includes tuberculosis. In January, the proportion for diseases of the respiratory system (pneumonia, bronchitis, etc.) was much higher than that for diseases of the circulatory system (heart disease, diseases of the arteries, etc.). In February, however, conditions are reversed, the proportion for diseases of the respiratory system being considerably less than that for diseases of the circulatory system. This indicates that with the passing of winter there comes a falling off in the deaths due to pneumonia.

PUBLIC HEALTH ASSOCIATION.

The Sixth Session of the California Public Health Association will be held in San Francisco on April 16th. The committee has thought best to devote the time largely to a discussion of the water supplies of the State. As much of the pollution of the streams arises from sewage which is conducted into them, its disposal is entirely germane to the question.

An hour will be devoted to questions and answers, and much good should be derived from this hour, where each can give and take.

Governor Pardee, who is always interested in the sanitary advancement of the State, will be present and will deliver an address. It is expected that at least one of the addresses will be illustrated with lantern slides.

Since this meeting comes the day before that of the State Medical Society, it will be possible for members to get the reduced rates on the railroads accorded to those attending the meeting of the latter society.

All health officers should come, and come loaded with suggestions for the betterment of our State.

CALIFORNIA PUBLIC HEALTH ASSOCIATION

SIXTH SESSION

BOARD OF HEALTH ROOM, CITY HALL, SAN FRANCISCO
APRIL 16, 1906

PROGRAM

10:00 A. M.—Greeting by the President, DR. E. VON ADELUNG, Oakland.
10:30 A. M.—"The Condition of California Water Supplies," Dr. N. K. FOSTER, Secretary of the State Board of Health.

NOON RECESS.

1:30 P. M.—Address, "Advantages of Organization," by HON. GEORGE C. PARDEE, Governor of California.
2:30 P. M.—"The Sanitary Quality and Purification of Public Water Supplies," by PROF. CHARLES G. HYDE, of the University of California.
3:30 P. M.—"Sanitary Disposal of Sewage," by GEORGE L. HOXIE, City Engineer of Fresno.
4:30 P. M.—One hour devoted to questions and answers.

Each paper will be open for general discussion immediately after its reading. The discussion of the "Sanitary Disposal of Sewage" will be opened by DR. CHARLES F. CLARK, of Willits.

Members of the Association will meet at the banquet board in the evening, when short addresses of a general character will be indulged in.

OFFICERS:

President, - DR. EDWARD VON ADELUNG.
Vice-President, - - - DR. WM. SIMPSON.
Secretary, - - - - - - DR. N. K. FOSTER.

EXECUTIVE COMMITTEE:

Dr. J. W. Ward, Dr. Wm. Simpson,
Dr. C. C. Browning, Dr. D. F. Ragan,
Dr. E. N. Ewer, Dr. W. C. Hassler.

SUMMER SCHOOL OF SANITARY SCIENCE.

The State University has issued the following bulletin in relation to a course on Public Health and Sanitary Science, to be given at the coming Summer Session, providing sufficient interest is shown:

Public Health and Sanitary Science will be made a special department of the next Summer Session of the University of California, from June 25 to August 4, 1906, if sufficient applications are received before April 1st to warrant the undertaking.

The important problems in water supply and the disposal of sewage which constantly confront physicians and public officials will be the subject of a course offered by Charles Gilman Hyde, C.E., Assistant Professor of Sanitary Engineering, and recently a member of the engineering staff of the Massachusetts State Board of Health, which is charged by law with the inspection of the water systems and sewage plants of that commonwealth.

The bacteriology of infectious diseases will be discussed by Archibald R. Ward, Assistant Professor of Bacteriology and Director of the State Hygienic Laboratory. Students will have the opportunity of daily laboratory work in bacteriology and in the microscopical examination of specimens received at the State Hygienic Laboratory. An effort will be made to suit the laboratory work to the individual needs of individual students.

This undertaking means much for the advancement of sanitary science and the protection of public health. Will you coöperate by informing others interested in such work of the opportunities offered by the University of California?

It is earnestly requested that all persons who would hope to come to Berkeley for these courses should at once write to the Dean of the Summer Session, University of California, Berkeley.

An effort will be made to so arrange the work that should a physician find it possible to attend the Summer Session only for two or three weeks, he would be able to get the information which would concern him most. The fee for the Summer Session is $12.

This offers an exceptionally good opportunity for health officers and others interested in sanitation to get in touch with the most recent advancement in this important field. The health and life of the people are in no small degree in the hands of the health officer. On his knowledge and ability to correct wrong conditions is placed the hope and expectation of avoiding preventable disease. As a rule, health officers are able and willing workers, but many have had no special training for the position and labor under a great disadvantage, and it is a hopeful sign to see this interest shown by the State University. It is a step in the direction to what must surely come, a law requiring every health officer to attend for a few days each year a sanitary school where everything new, and much that is old, can be gone over and the useful taught in a way that will make it possible of application by the health officers.

As the city or town gets the advantage of these schools in improved methods and effective work, it should by right pay the necessary expense.

We sincerely hope that there will be many in attendance, for the character and ability of the men conducting it is sufficient guarantee that the course will be replete with interest and usefulness.

SMALLPOX.

Smallpox has been reported from so many parts of the State that it can be considered epidemic, and health officers are warned to be on their guard against it. There is so much activity in railroad building all over the State, and as several of the camps have become infected, it behooves the health officers of the localities where such camps are

located to watch closely. The men are constantly moving from one to the other, and are particularly apt to move on when a case of smallpox appears. One case has come to our attention where the party left the camp he was in for another, after he began to feel the symptoms of the disease. It is quite possible that the move cost him his life. The present form of the disease is by no means light, quite a large percentage dying.

The law requires that health officers report all cases at once to the State Board of Health, and that means be taken to control it. This should be observed closely, as the fear that knowledge of its existence will cause notoriety and injure the locality is foolish. It is bound to be known, and at the present time what people want to know is, that every effort is being made to control it. If it is they are satisfied, but if there is an effort to suppress the fact of its existence they are at once suspicious, and the imagination multiplies the cases.

As far as we are informed, and our information reaches most of the cases, none having the disease were ever vaccinated. In one town a physician who had never been vaccinated is down, while the others who were equally exposed are free.

This emphasizes the need of universal vaccination, and it may not be amiss to review briefly the advantages of the operation, the amount of good it has done, and the small danger attending it.

Before the introduction of vaccination smallpox was the worst scourge in existence. It was conservatively estimated that in Europe alone over 200,000 died each year from it, and that great numbers were left blind or otherwise maimed for life. It was a disease of childhood and few attained to adult life without having had it. The protective influence of vaccination was first made known in 1798 and more or less extensively adopted during the next few years. Immediately following this there was a sudden decrease in the extent and mortality of the disease. This has often been credited to the improved sanitary conditions; but the fact that other contagious diseases, and especially filth diseases, decreased only in a very limited degree, proves this ground to be not well taken. Indeed, in cities where the growth was large and sanitary conditions worse, the mortality from smallpox decreased in the same ratio as in places where better sanitation prevailed.

Fortunately, careful records were kept in various countries, and from these it is easy to prove the effect of vaccination.

In Sweden, during the twenty-eight years preceding vaccination, 2,050 died annually from smallpox in every million population; during the forty years following vaccination, only 158 per million. In Prague, for the seven years before vaccination, one twelfth of the total deaths were from smallpox; during the thirty-five years after, the ratio was only 1 to 457. In Copenhagen, for fifty years before vaccination, the smallpox death-rate was 3,128, and for the fifty years after, 286. In Berlin, for twenty-four years before, the smallpox death-rate was 3,422, and for the next forty years only 176.*

Figures might be multiplied, but it is useless, for the experience of almost all physicians and all hospitals proves the protecting power of vaccination. That the protection in all cases extends throughout a long life is not claimed, but even if later in life the disease is contracted,

*Figures taken from Welch and Schamberg's "Acute Contagious Diseases." (Philadelphia and New York, 1905.)

it is much lighter and is seldom fatal. Every one, however, should be re-vaccinated, when the protection is almost perfect.

The danger attending the operation is very small, and when compared with the danger attending the disease, sinks into insignificance.

Every wound, no matter how slight, may become infected with disease-producing germs unless proper care is taken to prevent such an occurrence, and it is almost entirely from this cause that deaths occur after vaccination. In Germany Voight estimated but one death in 65,000 vaccinations, and in his own practice of five years he vaccinated 100,000 people with but one death. Compare this with the death-rate before vaccination, when from one in every twelve to twenty died with smallpox, and the life-saving effect of vaccination will be evident.

The dangers from vaccination may be classed as follows: 1st. Careless operation. 2d. Impure virus. 3d. Wound infection.

To avoid these, 1st. Employ none but a careful physician, who does his operation in an aseptic manner. 2d. Use only virus which is produced by manufacturers whose products are known to be pure or are examined and certified by the United States Government. The danger from impure virus is, at the present time, very small. Almost no humanized virus is used, and only healthy calves are used to produce the bovine virus. They are tested for tuberculosis and other diseases, and the virus produced is carefully examined by making cultures before it is sold. 3d. The wound must be kept clean and aceptic. In this class of wound-infection come almost all the deaths. Frequently no care whatever is taken of the wound. It is left to be rubbed and irritated by the clothing which may be none too clean, and often the child is allowed to play in the dirt of streets and stables. When dressings are put on, not infrequently they are allowed to become dirty and a source of danger. Nature does her best to protect the sore by a scab, but this is often scratched or rubbed off by the clothing, thus leaving a most excellent chance for infection. The scab should always be carefully guarded and never removed until it drops of itself.

There is also occasionally a case where the child or person is in such a physical condition that no careful doctor would care to vaccinate. These, of course, should not be vaccinated until the disease causing the disability has been removed.

It is often charged that vaccinia produces other diseases. This is as impossible as it would be to inoculate with measles and produce scarlet fever or plant corn and raise potatoes. That other diseases follow at once after vaccination is due to coincidence only. Among the millions vaccinated, it would be strange indeed if in some cases it did not immediately precede the development of some other disease, not as a cause, but merely by chance. With humanized virus it might be done, with pure bovine virus never.

The conclusions reached by a vast majority of medical men, and especially by those who have had exceptionally good chances of observation and study, are:

1st. That vaccination and re-vaccination will protect from smallpox, and that the lessened mortality and the changing from a disease of childhood to one of adult life is the result of this operation.

2d. That if proper care is observed the evil results of vaccination will be almost *nil.*

There seem to be two classes who oppose vaccination. First, a small class who seem to dislike to obey law or to do anything not dictated by their own will. To these we have only to say that the constitutionality of the compulsory vaccination law has been upheld by the Supreme Court of the United States. The other class, good, law-abiding citizens who want to obey the laws and to do right, but who honestly believe that there is danger lurking in the operation. They hear of a death following vaccination, and although it was as far from being the cause, and perhaps farther, than the breakfast eaten that morning, it gets the credit. To this class we earnestly appeal to study, in an unprejudiced way, the whole question and weigh the evidence for and against. It is a question of too great moment to be hastily decided from prejudice arising from a death following vaccination—a death which was not caused by the vaccination, but was rather the result of an inoculation which might as easily have been received through any other wound of the skin that was not kept clean and aseptic. Compare the death-rate from smallpox before vaccination was practiced, and now, taking into account that where vaccination is *not* practiced the death-rate is now as great as it ever was.

It is not a disease of filth, but attacks the clean and sanitary the same as the dirty and foul. Good health or fine houses do not protect, and if to some they seem immune, it is because they are thoroughly vaccinated. The charge that physicians urge it for the fees they get is too foolish to discuss. It would be on the same par as if the physicians in turn charged that the opponents were too stingy to pay for the protection. Vilification and abuse have no place in this important matter. The medical profession has given to the world an easy, simple, and practically harmless method of avoiding the most terrible scourge that has ever devastated the world. Accidents have followed its application, so have bad men crept into the most sacred societies; but both evils can be eliminated, and neither good thing should suffer from the experience. No other way of controlling the disease is known. Quarantine is unscientific, costly, and ineffective, for contagion will not be hedged in. Besides, very many cases of smallpox are never seen by a health officer, and they are met, not infrequently, on the cars or street.

WORK OF THE STATE HYGIENIC LABORATORY.

The experience of the eight months during which the laboratory has been in operation has shown that it is possible to actively coöperate in Berkeley, with health officers in far distant cities, in the work of repressing diphtheria. The laboratory has made examinations of diphtheria cultures from epidemics in Sacramento and Ontario, with a few scattering cases from other towns. In all, two hundred and forty-one serum cultures have been examined for diphtheria.

The value of a bacteriological examination is by no means restricted to the matter of diagnosis. The laboratory furnishes an accurate means for determining the duration of quarantine. The convalescent with virulent diphtheria organisms in his throat is quite as dangerous a source of infection as a case in which the membranes are present. Owing to the great variation under different circumstances, in the time *required for the diphtheria* organisms to disappear from the throat,

no definite period of quarantine is just to all. Some may be released early; others drag on for months. Occasionally, in these latter instances, the organisms in the throat lose virulence, and such a circumstance warrants releasing the quarantine. Upon request by the health officer or physician, the laboratory will make an examination for virulence by guinea-pig inoculation of cultures from cases that have been under quarantine for a month or over.

When the first culture is sent from a case, and the report is desired for deciding a doubtful diagnosis, it may be possible in certain cases to render a report more promptly than usual. When such doubt exists, the physician is requested, after inoculating the serum tube, to again smear the swab against the membrane to gather as much material upon the swab as possible. Mark "swab examination" on the upper right-hand corner of the report card, and when the specimen arrives at the laboratory a direct microscopic examination will be made from the swab. If diphtheria organisms are found, a positive report will be telegraphed immediately; if not, the report will be deferred until the culture may be examined. Experience elsewhere has shown that half of the cases reported positive after examination of the serum may be reported positive from an examination of the swab. The special swab examination should not be requested in cases for release from quarantine.

The work of the laboratory has by no means been restricted to work on diphtheria. About a hundred other bacteriological examinations have been made of sputum, suspected typhoid blood, and public water supplies.

Through the courtesy of Professor M. E. Jaffa, of the Agricultural Experiment Station, the laboratory has been able to respond to requests for examinations of foodstuffs with reference to the presence of preservatives and to make a number of important toxicological analyses. Professor G. E. Colby has made analyses of waters and septic tank effluents.

The request by the Board of Supervisors of the City and County of San Francisco that the laboratory participate in a complete investigation of the milk supply of the city in its relations to public health, has occasioned an extensive amount of work upon milk.

ARCHIBALD R. WARD, Director.

GERMANY'S WORK IN COMBATING TUBERCULOSIS.

By F. M. POTTENGER, A. M., M. D., in Southern California Practitioner.

No nation in the world is going at the tuberculosis problem with so much earnestness as Germany. It is really fitting that this should be so, for this is the home of Koch, the discoverer of the tubercle bacillus. Here also lived Brehmer, that far-seeing humanitarian who was the father of the sanatorium idea, founding the first institution for the cure of tuberculosis half a century ago. He was so much in advance of his confrères that they thought him insane for persisting in his belief of the curability of this disease, which had baffled medical skill during all the ages. Largely through the labors of these two men, the one demonstrating tuberculosis to be a germ disease that can be prevented and the other that it can be cured, have the forces of the entire civilized world been directed against the great white plague.

Not only have many of the scientific problems connected with this disease been worked out in Germany, but here also has the prevention of the disease received its greatest support.

Imbued with the Brehmer idea, Germany has erected many sanatoria for the care of her people. She has 75 people's sanatoria with 7,085 beds, and 31 private institutions with 2,028 beds, and still more in the course of construction.

There is one class of persons which still deserves the earnest attention of those who are building institutions of this kind, and that is the class which is not able to enter a private institution and above accepting charity, and this class was considered at the last meeting of the Central Committee for erecting sanatoria, and it was urged that institutions be erected where a nominal sum would be charged to meet the needs of this worthy class.

The permanency of results in the sanatoria seems to be increasing. With wider experience, some of the mistakes of the earlier days of sanatorium work are being remedied and better and more lasting results are being obtained. The statistics of the Prusso-Hessian Railway Company for 1905 show that 53.61 per cent of their workers who had been discharged five years were still able to do full work. This is a gain of 4.54 per cent over the statistics of the preceding year. The statistics of Friedrichsheim Sanatorium show of patients dismissed three and four years, 70 per cent of the I stage, 55 per cent of the II stage, and 23 per cent of the II stage are still able to work.

Great as is the humanitarian movement which prompts the erection of the German sanatoria, where the poor afflicted with tuberculosis in its early stages can be restored to their earning power and to the bosom of their families, *it can not compare with that other great work which has been instituted in Berlin—I refer to the "Fuersorgstelle," or helping stations.* In different sections of Berlin, the committee in charge of the tuberculosis relief work has rented apartments where the poor who suspect that they have tuberculosis can come and receive aid. These apartments are very simple and are run in a very practical and economical manner. There is no attempt whatever at show. There are two rooms, one for a waiting-room, the other for examinations. The floors are bare, the walls plain, no curtains at the windows, no furniture, except a few chairs and a table. There are one, two, or three nurses attached to each one of these stations, whose duty it is to keep a careful record of every case, take the history of the patient, especially inquiring into the conditions under which the patient lives, give instructions to each patient, visit their homes, and instruct them in the proper care of the sick, especially with reference to preventing the spread of the disease. In case anything is needed to increase the patient's chances of a cure or in order to prevent the spread of the disease, this is furnished by the station. In this way patients are sent to sanatoria while they are in the early stages. Advanced cases are directed to hospitals and homes, if there is room for them; if not, they are sometimes taken away from their densely crowded quarters where there is danger of infecting their family and placed in more commodious quarters which are provided. Sometimes pillows, blankets, or even beds are furnished to add to the comfort of the afflicted. Food is also *given and flasks* for the care of the sputum are always provided. The *'rses make regular* visits, seeing that the rules are being obeyed and *'ng new instructions* when necessary.

In case one member of a family is ill, all other members are required to come to the Station for examination. In this way as many as seven different individuals in a single family have been found afflicted. This careful work, this early finding out of the presence of the disease, and this watchfulness will eventually do more to root out the disease than any other measures imaginable. It is storming the disease in its stronghold; attacking it at its source. In my entire trip in Europe, I had nothing impress me so much as this rational plan of stamping out tuberculosis. Potter, Kayserling and their helpers are certainly heroes. Their names may not be written on the scroll of fame as they would be if they had slain their fellowmen in battle, but they will be indelibly stamped in the hearts of thousands of the poor, whose homes they have blessed by relieving the great white plague of much of its terror.

I do not wish to belittle any work that has been done anywhere in combating this dread disease, yet I believe that this work in the "Fuersorgstelle" in Berlin is the most comprehensive and most practical of all the measures heretofore inaugurated for combating tuberculosis. I should like to see such organizations in every city in our country. *We can stamp out tuberculosis in a reasonable time, if we go at it right.* We can let it continue its ravages, if we let it alone.

The foregoing article should be read and re-read and studied by every one interested in the extermination of tuberculosis, for it strikes at the root. If we can ever expect to limit to any great degree the ravages of tuberculosis we must strive to prevent people from contracting it. Taken in the incipient stage many can be cured, in the later stages some, but by no means all, and many who contract the disease, under whatever conditions they live, will die from it. By prevention all can be saved and cures will be unnecessary, but until that time comes the two must go hand in hand. Sanatoria should exist in every county and city, where incipient cases can be cared for and taught how to care for themselves. For those far advanced, where a cure is improbable, a hospital should be provided. There would be no need of extensive buildings, but a colony at the county or city hospital, distinct and separate from the main institution, but under the same management. This would reduce the expense to a minimum. Societies should be organized and the aid of philanthropic citizens secured to build sanatoria, where a reasonable charge could be made to those who do not need or will not accept public aid. But with these the "helping stations" should also be established, for in searching out the cases early and in helping and protecting the families lies the greatest good. The county and city authorities should take up and push this work to its full fruition, for there is nothing in the whole domain of social or political activity that can compare with it, for our annual death-rate from tuberculosis is tremendous, but it is a death-rate which can easily be lowered materially each year until it shall nearly cease.

IMPROVED SANITARY CONDITIONS.

The determination of the State Board of Health to enforce the law and prevent the unnecessary pollution of streams used for domestic purposes is bearing fruit, as shown by a general awakening of the

people to the necessity of such a reform—a voluntary action on their part in some instances, and general acquiescence in a request from the Board in others.

In February, a representative of the Board, at the request of citizens, visited the San Lorenzo River in the Santa Cruz Mountains to make suggestions that would aid them in keeping that beautiful stream in its native purity. As a result of this interest the Board has already received plans of sewage-disposal plants from the trustees of Boulder Creek, and from Hon. A. H. Breed of Brookdale, a rapidly growing town two miles below. As soon as the other towns and summer resorts along the river have followed these excellent examples there will be no more beautiful or health-giving resort in the world than the Santa Cruz Mountains, and the good results will be felt in the healthfulness of the charming city at the mouth of the river, Santa Cruz.

Seabright is also discussing the question of sewage destruction, and will no doubt in a short time have a complete system.

Susanville has awakened to the knowledge that she has outgrown the cesspool period and is looking ahead for a greater growth which she is sure to get if she perseveres and puts in an up-to-date sewer system, with a proper disposal of the sewage. There is no question but what a good sewer system is second only to pure water, the most valuable asset of a city, and with the two, as Susanville can have, she can justly claim to be a gem of the mountains.

Lodi, stimulated by her rapid growth, also feels the need of a new and complete sewer system, and judging from the usual energy of her citizens, will accomplish this much desired improvement.

Lincoln, not to be outdone by any of her neighbors, even though larger, has just held a large and enthusiastic meeting in the interest of sewer bonds. A representative of the Board had the pleasure of being present, and the interest shown was most gratifying. The citizens of Lincoln evidently see that in order to get their share of the rapid development of the Sacramento Valley they must offer a clean, attractive town. The bonds should pass without opposition.

Oxnard is installing a septic-tank system of sewage disposal, with an outlet in the ocean. Why not use it for irrigation and save the valuable fertilizing properties in solution, and at the same time completely purify the water? The combination of the septic tank and irrigation seems the most rational, cheap, and effective system for this State.

These are not, by any means, the only cities and towns improving their sewer systems and means of disposal, but as the health officers have not reported particulars we can not record them.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*..... University of California, Berkeley

VITAL STATISTICS FOR MARCH.

Summary.—The vital statistics reported for March are as follows: Living births, 1,950; deaths, exclusive of stillbirths, 2,523; and marriages, 1,471, or 2,942 persons married. On the basis of an estimated population of 1,882,483 for the fifty-seven counties of the State, the returns for March give the following rates: Births, 12.4; deaths, 16.1; and marriages, 9.4, or 18.8 persons married, per 1,000 inhabitants.

Tuberculosis, as usual, was the principal cause of death, tuberculosis of the lungs causing 416 deaths and tuberculosis of other organs 58. The next highest number, 330, is for diseases of the circulatory system, heart disease, etc., followed closely by 307 for diseases of the respiratory system, 231 deaths being due to pneumonia or broncho-pneumonia, and 76 to other diseases of the respiratory system.

The epidemic diseases causing most deaths in March were measles and influenza, each 32, typhoid fever, 19, and diphtheria and croup, 17. There were 9 deaths from smallpox—6 in San Francisco, 1 in Alameda County and 2 in Merced County. Meningitis caused 37 deaths in the month.

Causes of Death.—The following table shows for the State in March the number and proportion of deaths due to certain important causes arranged according to the International Classification:

Cause of Death.	Number.	Proportion per 1,000 Total Deaths.
ALL CAUSES	2,523	1,000.0
Typhoid fever	19	7.5
Malarial fever	3	1.2
Smallpox	9	3.6
Measles	32	12.7
Scarlet fever	6	2.4
Whooping-cough	8	3.2
Diphtheria and croup	17	6.7
Influenza	32	12.7
Other epidemic diseases	16	6.3

Cause of Death.	Number.	Proportion per 1,000 Total Deaths.
Tuberculosis of lungs	416	164.9
Tuberculosis of other organs	58	23.0
Cancer	157	62.2
Other general diseases	103	40.8
Meningitis	37	14.7
Other diseases of nervous system	191	75.7
Diseases of circulatory system	330	130.8
Pneumonia and broncho-pneumonia	231	91.6
Other diseases of respiratory system	76	30.1
Diarrhea and enteritis, under 2 years	37	14.7
Diarrhea and enteritis, 2 years and over	26	10.3
Other diseases of digestive system	114	45.2
Bright's disease and nephritis	154	61.0
Childbirth	28	11.1
Early infancy	76	30.1
Suicide	43	17.0
Other violence	146	57.9
All other causes	158	62.6

As usual, tuberculosis was the leading cause of death. Altogether 474 deaths were due to this cause, 416 being from tuberculosis of the lungs and 58 from tuberculosis of other organs. The number of deaths next highest, 330, was for diseases of the circulatory system, heart disease, etc. There were 307 deaths from diseases of the respiratory system, 231 being due to pneumonia or broncho-pneumonia, and 76 to other diseases of this system.

There were 191 deaths from diseases of the nervous system other than meningitis, 157 from cancer, 154 from Bright's disease and nephritis, 146 from violence other than suicide, and 114 from diseases of the digestive system other than diarrhea and enteritis. The suicides in March numbered 43.

Some 28 women died in childbirth or from other puerperal diseases, while 76 children died in early infancy from premature birth, congenital debility, etc. Diarrhea and enteritis caused 37 deaths of children under two years of age and 26 deaths of those above that age. The deaths from meningitis also numbered 37.

The epidemic diseases which caused the greatest number of deaths reported for the month were: measles and influenza, each 32; typhoid fever, 19; and diphtheria and croup, 17. There were 9 deaths from smallpox, 6 being in San Francisco, 1 in Alameda County, and 2 in Merced County.

A CASE OF BUBONIC PLAGUE.

After a lapse of two years California has another case of plague. The patient, a young Italian, worked in a sash and door factory and lived with his parents in fairly good sanitary surroundings. At present the source of infection is unknown, but every effort is being made by the United States and local health authorities to discover it and prevent any further occurrence of the disease. The latest investigations lead to the conclusion that rodents—rats, mice, squirrels, rabbits, etc.—are the great source of dissemination; not the only one, but by far the greatest. The disease is at present scattered largely over the whole *world, but is not* in epidemic form except in those countries where *poverty and filth* prevail, and it is entirely in the hands of the people *of a community* where it may occur to prevent any great extension

of the trouble. *The rodents should all be destroyed* and the premises kept clean. Each family should take it upon themselves to trap or poison all rats and mice about their place. Squirrels and rabbits should be destroyed in all possible ways, and in all cases care should be exercised in handling all rodents found dead. They should not be taken in the hand, but lifted with tongs or a stick, put in a paper sack and burned at once, or put into a 10 per cent solution of carbolic acid.

Bubonic plague is not easily communicated from one person to another, requiring an intermediary, as the flea, bedbug, or other vermin, and these are generally the means by which it passes from the animal to the human. Although there is no occasion for alarm, still all health officers should be on their guard. If a case is in doubt before death, a bacteriological examination of serum from bubo should be made. After death an autopsy should be held in all cases where there is doubt, or if a suspicion exists that there might be a desire to conceal the cause. Always destroy all excreta from the patient.

DESTRUCTION OF MOSQUITOES.

The time of year is fast approaching when the mosquito will begin her annual campaign against life, health, and the pursuit of happiness. That discomfort attended her attacks we always knew, but fearing nothing worse than the annoyance, we endured the nuisance with what patience we could command; but now that it is proven that death follows in her track, we have additional reasons for a crusade against this insect pest. Knowing that her presence is a direct menace to health, shall we endure it longer? Shall we consent to be annoyed by the buzzing, biting furies and also stand the chance of contracting disease? Their destruction is simple and not surrounded by the difficulties that many suppose. They breed almost entirely in stagnant water, very little in running water, and never in the grass, as is sometimes claimed; grass and weeds are an excellent protection for them, but the breeding place is always water. Rain-barrels, watering-troughs, old pails or cans, tubs in which plants stand, stagnant pools, vaults, or indeed any place where water remains for a considerable period of time, is a breeding place for mosquitoes. To rid ourselves of them we have simply to destroy their breeding places. In localities where there is much marsh land, this entails no little work and expense; but as the mosquito does not, as a rule, travel very far from its breeding place, the problem is not as difficult as at first appears.

Every city and town where mosquitoes are in the least troublesome should have an anti-mosquito society for the purpose of a systematic warfare against them. No barrels or vessels of any kind should be allowed to stand with water in them, unless screened. Often a discarded tin can in the back yard or alley contains water and is, therefore, a breeding place. These should be sought out and destroyed. All vaults should be closed or kept well covered with kerosene; swamps and pools should be drained, and watering-troughs emptied and washed twice a week. To accomplish this, unity of action is necessary and a society *in each town,* awake to the health and comfort of the people, *could do much good if* backed by a city and county ordinance somewhat

similar to the one adopted by the Board of Supervisors of San Mateo County, which is in part as follows:

SECTION 1. All pools of water or other places in which mosquitoes are being bred are hereby declared to be public nuisances. All health officers of the county, and the boards of health of all cities and towns in the county, are hereby given authority, and it is made their duty, upon the complaint, in writing, of any resident of the county, or city or town, to condemn as nuisances all such pools of water or other places in which mosquitoes are being bred, and order the summary abatement thereof.

SEC. 2. Upon being notified by such health officers or boards of health of the existence of such pools of water or other places in which mosquitoes are bred, and that the same has been declared a public nuisance by said health officers or said boards of health, it shall be the duty of the person or persons responsible for the maintenance thereof to forthwith abate such nuisance, and all persons refusing or neglecting to forthwith abate such nuisance, as directed by said health officers or boards of health, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not more than fifty ($50) dollars or be imprisoned in the county jail not more than twenty-five (25) days, or by both such fine and imprisonment.

As the mosquito which invades the house seldom flies far, individual action would do much good, and if all persons keep their own premises free from breeding places they will materially lessen the supply. Since ranchmen have complete control of their surroundings, and can generally, with very little trouble, prevent accumulations of water, they should never have mosquitoes to trouble them. If they have a water tank it should be screened with wire cloth of fine mesh; all watering-troughs for stock should be carefully cleaned twice a week; no cans, barrels, or pails of water should be allowed to stand; all pools should be drained; even the tracks of stock in the ground, being breeding places for the pest when filled with water, should not be allowed. Where it is impossible to drain or protect, coal oil on the water will kill the wigglers, which would later develop into mosquitoes.

Every person interested in the destruction of mosquitoes should keep in mind the following points:

First—The wigglers seen in stagnant water become mosquitoes.

Second—They breed only in water, generally stagnant; never in grass or weeds.

Third—The wiggler has to breathe in order to live, and comes to the top of the water for that purpose.

Fourth—The ordinary fresh-water mosquito does not fly far from its breeding place, seldom exceeding six hundred yards.

Fifth—Besides being a decided nuisance, mosquitoes carry disease, especially yellow fever and malaria.

Sixth—To be rid of them we have simply to destroy their breeding places. This can be done by allowing no stagnant water to remain uncovered. In case pools can not be drained, coal oil on the water will prevent the wigglers breathing, and will therefore destroy them.

Seventh—Goldfish in small ponds of water will destroy the wigglers.

SUMMER SCHOOL OF SANITARY SCIENCE AND HYGIENE.

The following course in Sanitary Science and Hygiene has been laid out for the Summer Session at the State University in Berkeley, from June 25 to August 4, 1906. This is the best opportunity ever offered in the State for health officers and others to get up-to-date instruction in these important subjects. If every health officer and teacher in the State could attend these lectures, a vast amount of good would be done.

SANITARY SCIENCE.

CHARLES GILMAN HYDE, C.E., Assistant Professor of Sanitary Engineering.

1. *Sanitary Science, Municipal and State Sanitation.* Assistant Professor HYDE.

A series of popular lectures, many of them richly illustrated with lantern slides, giving an outline of the most recent developments of knowledge concerning the relations of Sanitary Science to the public health; the sanitary aspect of the problems of cleanness, of pure air, pure water, and pure food; other important problems of the municipality and state; health laws and the organization, powers, and duties of boards of health.

This course is intended primarily for teachers, health officers, members of health and other municipal boards, and for all persons interested in the development of better sanitary standards and who are aware of the importance of public education in sanitation. 2 units.

Monday, Tuesday, Wednesday, Thursday, Friday, 10 A. M. Room 2, Agricultural Building.

2. *Potability of Water, Water Purification and Sanitation: Character of Sewage and Refuse, and Their Disposal.* Assistant Professor HYDE.

The pure-water problem; a discussion of the quality of water from the diathetic, enumerical, and sanitary points of view; methods of conserving the purity of public water supplies; systems of water purification.

Study of the character of sewage, garbage, and other municipal wastes; of the principles underlying their treatment and proper disposal; systems in use. 2 units.

Monday, Tuesday, Wednesday, Thursday, Friday, 11 A. M. Room 2, Agricultural Building.

HYGIENE.

ARCHIBALD ROBINSON WARD, B.S.A., D.V.M., Assistant Professor of Bacteriology and Director of the State Hygienic Laboratory.

1. *Bacteriology of Food Products.* Assistant Professor WARD.

Popular lectures on bacteria and their relation to the health of the home. The course will include a discussion of the pure-milk problem. 1 unit.

Monday, Wednesday, Friday, 9 A. M. Room 2, Agricultural Building.

2. *Bacteriology of the Infectious Diseases.* Assistant Professor WARD.

Designed primarily for physicians and students of medicine. Lectures and laboratory work, which latter will be adapted to the needs of the individual.

Lectures Tuesday and Thursday, 9 A. M. Room 2, Agricultural Building.

Laboratory work at hours to be arranged, to occupy at least three half-days a week.

BOVINE TUBERCULOSIS IN ITS RELATION TO PUBLIC HEALTH.

By ARCHIBALD R. WARD, D.V.M.

In 1901, at the International Tuberculosis Congress in London, Dr. Robert Koch promulgated a theory that checked, for about five years, the efforts of health officers to protect the public from tuberculosis of bovine origin. His views presented at that meeting cast a cloud of uncertainty over the matter of the communicability of tuberculosis from cattle to man. The immediate result was a marked stimulation of research on the subject, for the conclusions of Koch were received with incredulity by most men who had investigated the problem. There has been a lull in the battle against bovine tuberculosis, because the immense financial interests involved warranted delay until further evidence could be obtained by research. None of the work recently reported strengthens Koch's conclusions; on the contrary, his position has been shown to be untenable. The idea predominating among writers on the subject now is that Koch was wrong and that there is ample justification for protecting infants against milk of tubercular cows. The following report is not without interest in showing how completely the work of Koch has been discredited.

By way of explaining the importance of the results of the commission's work on the transmission of human tuberculosis to cattle, it should be noted that this flatly contradicts the results obtained by Koch. He made a few attempts to infect cattle from man and, failing, assumed that this would never occur. This assumption is advanced by him as an argument that the disease in cattle and man is not intercommunicable, and hence different.

INTERIM REPORT OF ROYAL COMMISSION ON TUBERCULOSIS.

The Royal Commission which was appointed on 31st of August, 1901, to inquire into the relations of human and animal tuberculosis, has issued the following interim report, which is signed by all of the commissioners:

To the King's Most Excellent Majesty,

May it please your Majesty, we, your Majesty's commissioners, appointed to inquire and report with respect to tuberculosis:

1. Whether the disease in animals and man is one and the same;
2. Whether animals and man can be reciprocally infected with it;
3. Under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favorable or unfavorable to such transmission:

humbly submit this report on the progress which we have made in the inquiry.

The greater part of the above reference is directed to the view which had been expressed that the bacillus which gives rise to tuberculosis in the human being, and that therefore the presence of the bovine bacillus in the milk or flesh of the cow, consumed as food by man, is not to be regarded as a cause of tuberculosis in the latter. To this point we first turned our attention.

After duly considering the matter, we came to the conclusion that it would be desirable not to begin the inquiry by taking evidence—that is to say, by collecting the opinions of others (though this might be desirable at a later stage)—but to attack the problem laid before us by conducting experimental investigations of our own.

The first line of inquiry upon which we entered may be stated as follows:

What are the effects produced by introducing into the body of the bovine animal (calf, heifer, cow), either through the alimentary canal as food, or directly into the tissues by subcutaneous or other injection, tuberculous material of human origin—*i. e.*, material containing living tubercle bacilli obtained from various cases of tuberculous disease in human beings—and how far do these effects resemble or differ from the effects produced by introducing into the bovine animal, under conditions as similar as possible, tuberculous material of bovine origin—*i. e.*, material containing living tubercle bacilli obtained from cases of tuberculous disease in the cow, calf, or ox?

We have up to the present time made use in the above inquiry of *more than twenty* different "strains" of tuberculous material of human *origin—that is to say,* of material taken from more than twenty cases of *tuberculous disease in* human beings, including sputum from phthisical

patients and the diseased parts of the lungs in pulmonary tuberculosis, mesenteric glands in primary abdominal tuberculosis, tuberculous bronchial and cervical glands, and tuberculous joints. We have compared the effects produced by several different strains of tuberculous material of bovine origin.

In the case of seven of the above strains of human origin, the introduction of the human tuberculous material into cattle gave rise at once to acute tuberculosis, with the development of widespread disease in various organs of the body, such as the lungs, spleen, liver, lymphatic glands, etc. In some instances the disease was of remarkable severity.

In the case of the remaining strains, the bovine animal into which the tuberculous material was first introduced was affected to a less extent. The tuberculous disease was either limited to the spot where the material was introduced (this occurred, however, in two instances only, and these at the very beginning of our inquiry), or spread to a variable extent from the seat of inoculation along the lymphatic glands, with, at most, the appearance of a very small amount of tubercle in such organs as the lungs and spleen. The tuberculous material taken from the bovine animal thus affected, and introduced successively into other bovine animals, or into guinea-pigs from which bovine animals were subsequently inoculated, has, up to the present, in the case of five remaining strains, ultimately given rise in the bovine animal to general tuberculosis of an intense character; and we are still carrying out observations in this direction.

We have very carefully compared the disease thus set up in the bovine animal by material of human origin with that set up in the bovine animal by material of bovine origin, and so far we have found the one, both in its broad general features and in its finer histological details, to be identical with the other. We have so far failed to discover any character by which we could distinguish the one from the other; and our records contain accounts of the post-mortem examinations of bovine animals infected with tuberculous material of human origin which might be used as typical descriptions of ordinary bovine tuberculosis.

The results which we have thus obtained are so striking that we have felt it our duty to make them known without further delay in the present interim report.

We defer to a further report all narration of the details of our examinations (and we may say that up to the present time we have made use of more than two hundred bovine animals), as well as all discussions, including those dealing with the influence of dose and of individual as well as racial susceptibility, with questions of the specific virulence of the different strains of bacilli, with the relative activity of cultures of bacilli and of emulsions of tuberculous organs and tissues, and with other points. In that report we shall deal fully with all these matters, as well as with the question why our results differ from those of some other observers.

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tubercle bacilli are specifically different from each other, and that the disease caused by the one is a wholly different thing from the disease caused by the other.

THE FLY AND THE TUBERCLE BACILLUS.

"The recent stress which has been laid on alimentary infection in tuberculosis should lead to a more careful consideration of the means by which tubercle bacilli may reach the alimentary canal. The recent studies of Lord show that the ubiquitous fly may play an important part in alimentary transmission. The bacilli not only pass the alimentary canal of the fly unchanged, but undergo a marked proliferation there. Fly specks may contain as many as 5,000 bacilli, and, according to Lord's computations, thirty infected flies may deposit within three days from 6,000,000 to 10,000,000 tubercle bacilli. The danger does not seem to be from the liberation of bacilli in the air, but from the deposition of the fly specks on food. That this can and does occur under certain circumstances was abundantly demonstrated by our experience with typhoid fever during the Spanish-American war. We should bear in mind the possibility of infection by the fly and be much more strict than we are at present in the disposition of sputum and in the protection of foodstuffs, and this refers particularly to the summer months."—*Journal of American Medical Association.*

SMALLPOX.

Reports of smallpox still come from all parts of the State, although active work on the part of local health officers has kept it from becoming extensively epidemic. During December, January, and February there were in San Francisco 99 cases. Dr. Ragan, Health Officer of that city, in his February report, says:

"The history of the entire 99 cases (taken at the smallpox hospital) shows that 96 of them were never vaccinated; three were vaccinated once, the remaining scar being evidence of a successful 'take.' None of these individuals infected had been vaccinated since childhood. Of these 99 cases, 47 were of the *confluent* type, 52 of the *discrete* type, and one of the *hemorrhagic* type. The mortality in the 99 cases was four—one of these being the hemorrhagic case above noted."

This is the universal observation. Very few that have ever been vaccinated have the disease. Health officers should see that cases are not allowed to go free until they are entirely clean of scabs, for as long as the remains of one are left the patient is dangerous. It is far better to be on the safe side, by keeping a patient a few days longer, than to have others contract the disease.

* * * * *

Postal report cards have been sent to all health officers known to the State Board, on which to make monthly report of diseases. A few send them regularly. Why don't the rest? It is a State law, and every *officer swears to obey* the law.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

Entered as second-class matter August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Vol. I. SACRAMENTO, APRIL, 1906. No. 11.

STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M, *Director*.....University of California, Berkeley

VITAL STATISTICS FOR APRIL.

Summary.—For April there were reported 1,113 living births, 2,386 deaths, exclusive of stillbirths, and 1,010 marriages, which, for an estimated State population of 1,882,483, give the following annual rates: Births, 7.1; deaths, 15.2; and marriages, 6.4, per 1,000 inhabitants. The relatively low rates are explained by the seismic disturbance in San Francisco and vicinity on April 18th. The great fire in the metropolis destroyed the statistical records for the first part of the month, and the deaths for the latter part, even including deaths recorded as due to earthquake and fire, fall short of the usual monthly total. Moreover, the disturbed conditions necessarily resulting prevented (or at least have postponed) the recording of marriages and births, especially the latter, in San Francisco and other counties.

Altogether 607 deaths were reported as due to earthquake and fire, 395 being in San Francisco and 212 in other counties. The bulk of the deaths outside the metropolis were at Agnews State Hospital and in Santa Rosa city, the rest occurring mainly among refugees from San Francisco dying of exposure or fright.

Of the normal deaths for the State outside the metropolis, tuberculosis, as usual, was the leading cause, followed by heart disease and pneumonia. The principal epidemic diseases were typhoid fever, measles, influenza, and diphtheria and croup.

Causes of Death.—The confusion resulting from the great fire in San Francisco has delayed the transmittal of original certificates for that city, so that only a brief summary of deaths there from April 18th to 31st is available. Accordingly, the following table shows the number

of deaths in April due to certain important causes only for the rest of the State:

	San Francisco.	Rest of State.
ALL CAUSES	547	1,839
Typhoid fever	..	21
Malarial fever	..	8
Smallpox	..	5
Measles	..	18
Scarlet fever	..	8
Whooping-cough	..	5
Diphtheria and croup	..	15
Influenza	..	16
Other epidemic diseases	..	9
Tuberculosis of lungs	..	276
Tuberculosis of other organs	..	36
Cancer	..	81
Other general diseases	..	50
Meningitis	..	27
Other diseases of nervous system	..	127
Diseases of circulatory system	..	215
Pneumonia and broncho-pneumonia	..	145
Other diseases of respiratory system	..	40
Diarrhea and enteritis, under 2 years	..	27
Diarrhea and enteritis, 2 years and over	..	11
Other diseases of digestive system	..	88
Bright's disease and nephritis	..	99
Childbirth	..	14
Early infancy	..	37
Unspecified natural causes	145	101
Suicide	..	23
Earthquake and fire	395	212
Other violence	7	125

Altogether 607 deaths were due to earthquake and fire—395 in San Francisco and 212 in other counties, as follows: Santa Clara, 139; Sonoma, 55; Alameda, 12; Sacramento and Solano, 2 each; and Napa and Nevada, 1 each. The bulk of the deaths in Santa Clara County were at the State Hospital at Agnews, and all in Sonoma County were in Santa Rosa city. Most of the deaths in Alameda County and all in the remaining counties occurred among refugees from San Francisco, young children dying from exposure and elderly people from fright or heart disease.

Of the normal deaths in the State outside of San Francisco, tuberculosis, as usual, was the leading cause, 276 deaths being due to tuberculosis of the lungs and 36 to tuberculosis of other organs. The next highest number, 215, was for diseases of the circulatory system (heart disease, etc.), followed by 145 for pneumonia and broncho-pneumonia.

The leading epidemic diseases in April were: Typhoid fever, 21; measles, 18; influenza, 16, and diphtheria and croup, 15.

THE CATASTROPHE IN SAN FRANCISCO.

On the morning of April 18th a severe earthquake visited San Francisco and surrounding towns. Chimneys and cornices were thrown down and buildings of poor construction destroyed. Houses on wooden foundations that had decayed went down, and brick structures built with mortar which was largely sand, collapsed.

In San Francisco fire immediately followed and, owing to the destruction of the water mains, swept over and destroyed a large part of the city, rendering homeless 300,000 people. The loss of life was severe, but not so great as in many other calamities. Reports which are nearly complete show a death list of 607 in the entire State.

The State hospitals were badly damaged, Agnews being almost entirely destroyed, and the Home for Feeble-Minded was injured to the extent of many thousand dollars. In this institution, however, no one was injured. There are lessons to be learned from the disaster, and if properly heeded, some time, after the personal sorrow and distress are passed, we will look upon it as a blessing.

Three-story brick buildings which are unsightly, unsafe, and expensive will give place in State hospitals to smaller buildings, where patients can be segregated and receive better care, and which are infinitely safer. More care will be given to construction, and poor work will not be accepted.

Sanitary laws should be strictly adhered to in rebuilding San Francisco. No unsanitary parts should be allowed. Chinatown was not the only filthy place; but they are all gone and must never be allowed again. All buildings should be made rat proof, especially in the business parts, by making basements, on bottom and sides, of cement or some other rat-proof material.

Sewers and sewer connections should be improved and tenement houses built so that sun and air can have free access to every room. Should this one thing be done the saving of life from tuberculosis alone, would soon far more than offset the loss by the earthquake and fire.

There is now every chance to make the city the most beautiful as well as the most healthful in the world. There is no city for which nature has done more, and with plenty of pure water, which can be easily secured, and rebuilt along sanitary as well as artistic and utilitarian lines, the new and greater San Francisco will far outshine the old.

A better supply of water in safer pipes is also an urgent necessity for the San Francisco which is to come.

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The disaster in San Francisco gave occasion for a quick and effective sanitary organization and an exhibition of marked executive ability. The health authorities recognized the gravity of the situation and that the sanitary problem was of the utmost importance. With 300,000 people thrown out of home and business; with almost no water in the houses left unburned, and what there was of more than a doubtful nature; with the sick freely mingling with the well; with camps established everywhere, and all without sewer connections; and with irregular food and scanty covering, there was justification of the fear that much sickness would result. The day following the commencement of the fire, a thorough organization for the protection of health was formed. Col. George H. Torney, Deputy Surgeon-General and a thorough sanitarian and organizer, represented the U. S. Army; Drs. James W. Ward (president), Simon, Harrison, Hassler, and Ragan, the City Health Commission; Drs. Martin Regensburger and N. K. Foster, the State Board of Health; and Dr. Sawtelle, the U. S. Public Health and Marine Hospital Service.

Dr. Ward, as President of the City Health Commission, was given full power to control sanitary measures, and the control could not have been put into abler or more willing hands. Long before the fire was out, headquarters were established in Golden Gate Park, hospitals started, the city districted and each put under a responsible chief, the camps were *patroled* and inspected, toilets were established, and *plans formulated for* concentration in a single camp. As rapidly as

possible a house-to-house inspection was made, all garbage cleaned up, people removed from unhealthful localities to those better adapted to their needs, and instructions issued about how to protect the healthfulness of the individual and camp. Cleanliness was insisted on and an earnest effort made to prevent the pollution of the soil.

The Medical Department of the U. S. Army, the U. S. Public Health and Marine Hospital Service, and the State Board of Health all worked in harmony with the city authorities, and all have the satisfaction of knowing that the quick active work was effective, and now, after a month's time, there is no more than the normal amount of sickness in the city.

This exhibition of sanitary work—a work that is unparalleled in effectiveness—could not have been accomplished had it not been for the active coöperation and hard, earnest work of the doctors of the city. With their offices and contents burned, and oftentimes with all they had on earth except their courage gone, they gave their time and best endeavors to succor the stricken city. They toiled in whatever place or position it was necessary to relieve suffering, and no history of the great catastrophe will be complete that does not fully recognize their noble work.

SMALLPOX.

In the last two issues of the Bulletin we have called attention to the existence of smallpox in the different parts of the State, and to the necessity of prompt isolation and vaccination. The need of this is intensified by the fire in San Francisco. As reported last month, smallpox was quite extensive in that city. Owing to the dread of quarantine there is always a certain number of cases that are never reported to the health officers. Most of these are light cases and have no physicians. They are, however, as dangerous as a more severe case, and those contracting the disease from one of them is just as liable to have a severe attack. Some of the non-reported cases are attended by physicians, who, for reasons of their own, do not report them. Under normal conditions some of these take reasonable care, remain isolated until all danger of spreading the disease ceases, and are careful that proper disinfection is practiced. Many—yes, most—do not, and in this way the disease is kept alive.

In an accident like the recent burning of San Francisco they are all driven out and are mixed generally with the people. The sick and those who had been exposed have spread out over the surrounding country, and, as was to be expected, we have now many points of infection and undoubtedly more will appear. Under these conditions it is absolutely necessary for the local health departments to exercise the greatest care. Physicians should report all cases, even those in doubt. It is better to keep a few quarantined until the nature of the disease can be established than to let any be exposed unnecessarily. Vaccination should be urged in all cases, and the State law in regard to vaccination in schools should be enforced. To quarantine all those who have been exposed to smallpox oftentimes works a hardship, and is really unnecessary. *Vaccination will stop the disease*—nothing else will. All contacts *should be* vaccinated and disinfected, if it is possible that their clothing *may have* received the contagion, after which they can be allowed to go

to their usual employment, provided they can be under inspection by the health department; should they become sick they can be isolated before there is danger to others.

While the greatest care and firmness must be exercised, we must remember that we are facing a condition in the State never before experienced in this country, and temper our acts accordingly. We must protect the health of the community, sometimes with what may seem arbitrary measures, but no unnecessary restraints should be imposed.

MEETING OF THE PUBLIC HEALTH ASSOCIATION.

The sixth semi-annual session of the California Public Health Association was held in San Francisco, April 16th. Each session has increased in interest, and this was no exception. The day was given to papers and discussions on the water supplies of the State and on the disposal of sewage.

The first paper, "The Condition of California Water Supplies," by Dr. N. K. Foster, was a description of the polluted condition of many of our streams, and also called attention to the danger of wells located so they could receive the drainage of toilet or corral.

Prof. Chas. G. Hyde, of the University of California, read a paper on "The Sanitary Quality and Purification of Public Water Supplies." He explained the needs of pure water for domestic and manufacturing purposes, and said that the clear, sparkling water was not always pure, nor the turbid one always unhealthful. He compared the typhoid ratio in Massachusetts and Pennsylvania, as showing the good results of carefully guarding the streams.

Mr. George L. Hoxie, City Engineer of Fresno, read a paper on "Sanitary Disposal of Sewage," advocating strongly the disposal of sewage on land, either direct or after treatment in the septic tank, and describing fully the new disposal system being installed in Fresno.

Dr. Charles F. Clark, of Willits, read the last paper, on "Sewage Disposal," giving in detail the process of bacterial destruction and showing the dangers of sewage pollution of land and water.

The discussions that were brought out were of great interest, and an effort will be made to have the whole proceedings published.

The following officers were elected for the coming year: President, Wm. Simpson, M.D., San José; Vice-President, James W. Ward, M.D., San Francisco; Secretary and Treasurer, N. K. Foster, M.D., Sacramento.

The next meeting will be held in San José, at the call of the Executive Committee.

TYPHOID FEVER.

Typhoid fever is reported from several parts of the State, and in some it is quite severe. In those parts where the disease is severe, the water supply is under suspicion and is doubtless the cause, as in most cases the pollution is plainly to be seen, and in all there is a possibility. Typhoid fever is a preventable disease and should not be allowed to exist; it is a disease of filth, for it is only communicated through the excreta of the diseased person. This excreta, being loaded with the *germs of typhoid,* and finding access to our food and drink, and there-

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This is the universal observation. Very few that have ever been vaccinated have the disease. Health officers should see that cases are not allowed to go free until they are entirely clean of scabs, for as long as the remains of one are left the patient is dangerous. It is far better to be on the safe side, by keeping a patient a few days longer, than to have others contract the disease.

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Postal report cards have been sent to all health officers known to the State Board, on which to make monthly report of diseases. A few send them regularly. Why don't the rest? It is a State law, and every *officer swears to obey* the law.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE BOARD OF HEALTH.

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STATE BUREAU OF VITAL STATISTICS.

N. K. FOSTER, M.D., *State Registrar*..Sacramento | GEORGE D. LESLIE, *Statistician*.....Sacramento

STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M, *Director*.....University of California, Berkeley

VITAL STATISTICS FOR APRIL.

Summary.—For April there were reported 1,113 living births, 2,386 deaths, exclusive of stillbirths, and 1,010 marriages, which, for an estimated State population of 1,882,483, give the following annual rates: Births, 7.1; deaths, 15.2; and marriages, 6.4, per 1,000 inhabitants. The relatively low rates are explained by the seismic disturbance in San Francisco and vicinity on April 18th. The great fire in the metropolis destroyed the statistical records for the first part of the month, and the deaths for the latter part, even including deaths recorded as due to earthquake and fire, fall short of the usual monthly total. Moreover, the disturbed conditions necessarily resulting prevented (or at least have postponed) the recording of marriages and births, especially the latter, in San Francisco and other counties.

Altogether 607 deaths were reported as due to earthquake and fire, 395 being in San Francisco and 212 in other counties. The bulk of the deaths outside the metropolis were at Agnews State Hospital and in Santa Rosa city, the rest occurring mainly among refugees from San Francisco dying of exposure or fright.

Of the normal deaths for the State outside the metropolis, tuberculosis, as usual, was the leading cause, followed by heart disease and pneumonia. The principal epidemic diseases were typhoid fever, measles, influenza, and diphtheria and croup.

Causes of Death.—The confusion resulting from the great fire in San Francisco has delayed the transmittal of original certificates for that city, so that only a brief summary of deaths there from April 18th to 31st is available. Accordingly, the following table shows the number

dence, marriage and legacies; in marriage in our own country, in voting and in jury and militia service, in the right to admission and practice in the professions and to many public offices, in the enforcement of laws relating to education and to child labor, as well as to various matters in the Criminal Code—the irresponsibility of children under ten years of age for crime and misdemeanor, the determination of the age of consent, etc."

While our law may not be perfect, and experience may show the way to a better one, it is the one in this country that has produced the best results. Until we get a better one, the physicians should loyally support it. By keeping a supply of blanks in their obstetric cases, they can, without loss of time, fill them out. The child has a right to this registration, and the physician's duty to it is not done until the certificate is filed.

The Monthly Bulletin of the Indiana State Board of Health quotes Dr. Frank Billings as saying in his presidential address before the American Medical Association:

"The physician's duties are not all performed until he has duly made out such certificates of births, deaths, and contagious diseases which he has attended. His duties to his country and the laws, his duty to the profession to which he belongs and to his patient all demand of the physician that he make full reports."

ASSOCIATIONS OF HEALTH OFFICERS.

A short time ago the State Board of Health invited the health officers of Kern, Kings, Tulare, Fresno, Madera, Merced, Mariposa, Stanislaus, San Joaquin, Tuolumne, Calaveras, and Amador counties to meet in Fresno, on June 16th, for the purpose of organization.

In response to that invitation, health officers from Kern, Kings, Fresno, Madera, Merced, Mariposa, and San Joaquin counties met and organized "The Central California Health Officers' Association." Dr. W. S. Fowler of Bakersfield was elected president, Dr. Mary R. Butin of Madera, vice-president; Dr. O. W. Steinwand of Selma, secretary, and Dr. G. L. Long of Fresno, treasurer.

"The object of this association is to unite all the health officers of Central California in a more perfect and systematic organization; to act as an adjunct to the State Board of Health; to carry out and enforce the health laws of the State of California; to endeavor to bring about a better understanding of the same with the general public; and to secure and promote such influence, as health officers, as can only result from a systematic and uniform organization."

It was decided to hold semi-annual meetings, and the next one will be held in Stockton in December.

It is very much to be regretted that the health officers of the remaining counties—Tulare, Tuolumne, Stanislaus, Calaveras, and Amador—were not able to be present to join in the discussions and to impart to others their valuable experience. They are earnestly invited to attend the December meeting at Stockton.

Two papers were read, the first by Dr. Mary R. Butin of Madera, on "The Model Sanitary Municipality," the other by Dr. W. S. Fowler of Bakersfield, on "Disinfection." Both papers were full of good *things, well said,* and brought out extended and interesting discussion.

It is these discussions entered into by all, and where each one feels free to express his belief, founded on experience, that make these associations particularly interesting and valuable. We all learn by experience, but the field is so large, a good deal must be from the experience of others.

The influence of the association is bound to be great on the health conditions of the district. There will be strength of organization in fighting unsanitary conditions and disease, where formerly it was individual effort. It will bring the position of health officer more prominently before the public, and by showing its use and beneficial results lead to a more hearty coöperation and recognition. From the earnestness and ability displayed in the first meeting we predict a successful future for The Central California Health Officers' Association.

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Why not have similar associations in several other sections of the State? Southern California could have one to its great good. There are many health officers there who would profit much by such an association, and the whole section would reap the benefit. The same is true of the northern counties, and the coast counties could have a central meeting point at the bay. The State Board will be glad to take the initiative and aid in getting health officers together and organizing, provided there is any disposition on the part of those interested.

SMALLPOX.

In the February issue of the Bulletin we called particular attention to smallpox, and warned health officers to be on their guard against it. Despite that warning and the active work of many of the health officers the disease has spread until it is now reported from eighteen different cities and towns, in fourteen different counties, and there are no doubt cases in other counties that have not been reported. There is no disease more loathsome, few more fatal, and none more easily controlled.

The comparative lightness of the disease during the past few years has apparently made people disregard and cease to fear it. They have entirely forgotten the tens of thousands who formerly died from it and the thousands who were left badly deformed, nor do they recognize the fact that the same severity of type may prevail again at any time. Indeed, it is already becoming more severe, and the death-rate is not insignificant. Vaccination has practically stamped the disease out of Germany, and, if properly done, would here. Health officers should insist on this and urge vaccination upon all. The health regulations of the State require that every one who has been exposed shall be vaccinated or quarantined for twenty-one days. This must be enforced. The school authorities should do their duty and enforce the vaccination law, and then the school children at least would be safe. There are a few so-called physicians in the State who seem to have a constitutional inability to diagnose smallpox, or, as it sometimes seems, possessed of an evil spirit which prompts them to deny its existence when they know the fact. This is largely responsible for the spread, and has caused much sickness, a few deaths, and the expenditure of many thousands of dollars by the communities for quarantine pur-

poses and other means of suppressing the epidemic caused by their denial. This class of men should be so thoroughly ostracized that they will need find other occupation, for they bring disgrace upon the profession and suffering and death to their patients. We recognize the difficulty of diagnosis in some cases, and that an honest difference of opinion may exist; however, it is not to this to which we refer, but to the many known cases where the attending physician will admit to the consultant or health officer the existence of the disease when he is forced by the evidence of the case to do so, yet deny it to the family and minimize the danger.

Isolation of all cases must be carefully practiced. All bedding which can not be boiled must be destroyed. Rooms in which the patient is sick should be thoroughly screened, so that flies or other insects can not gain admittance or pass out, for they may be the means of communication. Patients are oftentimes let out before all sores are healed and scabs removed, thus practically wasting all the effort previously made to prevent the spread of the contagion. They should be kept in until entirely clean, and before they are allowed to go out, given an antiseptic bath.

Disinfection is an important step in the prevention of its spread, for the contagion will cling for a variable length of time to articles used about the patient. The following from Welch and Schamberg is to the point:

"All discharges, not excepting those from the nose and mouth, should be received into a vessel containing such disinfectant as chloride of lime, carbolic acid or bichlorate of mercury. Under no circumstances should the excreta be allowed to flow into the sewer or be cast away without first having undergone disinfection. In country districts where disinfection may not be readily obtained, the discharges should be buried deeply in the ground in a locality where there is no danger of contaminating the water supply. Every handkerchief, towel, and article of bedding and clothing used by the patient should be steeped for some time before leaving the room in a solution of two fluid ounces of chloride of zinc or four fluid ounces of carbolic acid to the gallon of water, and afterwards boiled by themselves for half an hour or longer in plain water; all small articles, such as bits of linen, sponge, absorbent cotton, and the like, should be burned immediately; all utensils used for eating and drinking should be purified by boiling water; and, in short, nothing should be allowed to leave the room without having first been subjected to some form of disinfection."

After death or recovery, the sick room should receive attention. Everything of no great value, and everything that can not be properly disinfected, like the mattress, should be burned. Objects that can be subjected to wet heat without injury, should be boiled for half an hour. The room and such articles as can not be boiled must be subjected to thorough disinfection. Carpets should be raised from the floor, so that the gas can get under them. Neither the formaldehyde gas nor that from burning sulphur penetrates very deeply into dry material, so before fumigating it is well to spray the room and furnishings to be disinfected with some disinfecting solution. The forty per cent solution of formalin, which is generally used for disinfecting, diluted one or two times with water, is excellent for this purpose. The

room must be carefully prepared by sealing all cracks and closing holes in the chimneys. If formalin is used, a pint to 1,000 cubic feet is not too much. If sulphur, five pounds to the same space, and in either case leave the room closed for eighteen hours.

Sunlight and pure air are always in order, both through the time of sickness and afterwards, and a plentiful supply should be furnished. They will kill the germs of disease; but the process is not rapid, and should be used to supplement the other, not to replace it.

If these suggestions are carried out, all cases promptly reported, complete isolation of the sick and attendants, vaccination of those exposed, thorough cleaning of the convalescent patient, destruction of all discharges, bits of food, clothes, etc., used about the patient, screening of the room, and disinfection of house and contents, the present epidemic can be quickly subdued.

TYPHOID IN ROCKLIN.

At the request of the Board of Health of Rocklin, the Secretary of the State Board of Health visited that place on June 1st, for the purpose of determining the cause of the typhoid fever epidemic which existed there, and if found, have it abated.

Rocklin is a small town of 1,000 inhabitants, the principal industrial industries being the railroad shops and granite quarries. The location is healthful and the water supply is from the mountains, the water being conducted in an open ditch to within about five miles of town, when it enters a closed pipe from a very small reservoir. Some of the railroad men bring water from the mountains on the engine for the use of their families.

The first case appeared in December, 1905, and was soon followed by another in the same family. The second case might easily have been of secondary infection. There were no further cases until April, 1906, when a number of cases occurred in rapid succession, until on June 1st there had been nineteen cases.

Loomis, a town of two or three hundred inhabitants, farther up the road and having the same water supply, had four cases of typhoid, which were no doubt traceable to the same cause, and are considered as part of the same epidemic.

The cases were all typhoid, and there is no dispute as to diagnosis. Two deaths occurred out of the twenty-three cases. The cases were scattered in all parts of the town, and in only three houses was there more than one case in a house. In one there were three, and in two houses two cases each, leaving fifteen different points of infection, and in no case were the houses in close proximity, making it probable that the disease spread from one to the other. There was no common supply of milk, many keeping their own cows, so that milk as a cause was quickly eliminated, as was the vegetable supply, for a like reason.

It seemed reasonable to suppose that the water supply was at fault, and this was strengthened by the fact that the families of railroad men who brought water from the mountains were not affected, and that Loomis, using the same water supply, had several cases of typhoid. It seemed so probable that the water was at fault that an investigation of it was undertaken by a member from the State and one from the local Board of Health. A sample from the reservoir had already been

sent to the State hygienic laboratory for analysis, but the report had not been received.

The reservoir was visited first. It was but a few yards across, and located close beside the wagon road and probably but one hundred or two hundred feet from the main line of railroad. It was entirely unprotected, even by a fence, which would keep boys or animals from bathing in it. This, of itself, might be the cause; but we determined to look further. The open ditch which brings the water to the reservoir runs through a farming district and is subject to the wash from many fields, orchards, and, no doubt, corrals. The capstone was reached, however, when at Penryn we found a China and Jap town situated in a small hollow, with gently sloping sides, but with quite a steep descent. The houses were built on either side and directly across the hollow which received all the drainage from them. Across the lower end of this hollow ran the water ditch into which discharged quite a stream of water, the drainage from the hollow.

It seemed useless to hunt further for a cause, for while other sources of pollution might be found, here was enough to condemn the supply. The result of the examination of the water at the laboratory, received soon after the inspection, confirmed our belief that the water was polluted, colon bacilli being plentifully found.

Owing to the reticent nature of the Orientals and their fear of being disturbed in their mode of life, it is very difficult to get from them any history of previous sickness. This makes it impossible to trace the disease to a former case, but as the Japanese are quite subject to typhoid, in this State, at least, it is more than probable that some one of them was sick with it in that camp, or came there while convalescing.

To summarize: (*a*) We have two adjoining towns, having the same water supply, afflicted with a sudden epidemic of typhoid, where one in fifty of the inhabitants was sick, and a death-rate of ten per cent.

(*b*) But four of the cases could possibly have been secondary.

(*c*) Milk and other food supplies, as a cause, were eliminated.

(*d*) All the cases used the town water supply.

(*e*) A bacteriological examination of the water showed colon bacilli, and plenty of pollution was found by examining the ditch.

There had been an attempt to keep the ditch free from pollution by building a flume over it for the drainage of the hollow to pass through. This, however, was ineffective, and the company was notified to at once take steps to conduct the water over the drainage. This they promptly did, and that source of danger has been shut out. The mud in the reservoir may be still infected, and when stirred up by any means may yet cause trouble.

CALIFORNIA STATE BOARD OF HEALTH.

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STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*..... University of California, Berkeley

VITAL STATISTICS FOR JUNE.

Summary.—For June there were reported 1,807 living births, 2,439 deaths, exclusive of stillbirths, and 2,342 marriages, as compared with 1,712 births, 2,375 deaths, and 1,739 marriages registered in May. The annual rates, based on an estimated State population of 1,882,483, are as follows: Births, 11.5 for June against 10.9 for May; deaths, 15.5 for June against 15.1 for May; and marriages, 14.9 for June against 11.1 for May. The increases in the rates for June over those for May reflect the growing completeness in the registration of vital statistics in California, though the rise in the marriage rate is due also to the fact that June is a favorite month for weddings.

As usual, tuberculosis was the leading cause of death, followed by diseases of the circulatory and nervous systems, and by pneumonia and broncho-pneumonia.

The most fatal epidemic diseases in June were typhoid fever, measles, whooping-cough, diphtheria, croup, and influenza. The mortality from typhoid fever was the same in June as in May, while the deaths from measles were less than before, and those from whooping-cough were greater in June than in the preceding month.

Causes of Death.—The following table gives for the State in June the number of deaths due to certain important causes, as well as the proportion from each cause shown per 1,000 total deaths:

Cause of Death.	Number.	Proportion per 1,000.
ALL CAUSES	2,439	1,000.0
Typhoid fever	40	16.4
Malarial fever	6	2.5
Smallpox	7	2.9
Measles	20	8.2
Scarlet fever	5	2.0
Whooping-cough	19	7.8
Diphtheria and croup	17	7.0
Influenza	10	4.1
Other epidemic diseases	26	10.7
Tuberculosis of lungs	325	133.2
Tuberculosis of other organs	59	24.2
Cancer	138	56.6
Other general diseases	83	34.0
Meningitis	43	17.6
Other diseases of nervous system	201	82.4
Diseases of circulatory system	288	118.1
Pneumonia and broncho-pneumonia	155	63.5
Other diseases of respiratory system	64	26.2
Diarrhea and enteritis, under 2 years	128	52.5
Diarrhea and enteritis, 2 years and over	47	19.3
Other diseases of digestive system	108	44.3
Bright's disease and nephritis	147	60.3
Childbirth	18	7.4
Early infancy	91	37.3
Suicide	43	17.6
Other violence	196	80.4
All other causes	155	63.5

Tuberculosis, as usual, was the leading cause of death, though the per cent of all deaths caused by tuberculosis of the lungs and other organs was only 15.7 for June, against 16.4 for May. Next after tuberculosis come diseases of the circulatory system, diseases of the nervous system, and pneumonia and broncho-pneumonia, in the order named.

The principal epidemic diseases in June were: Typhoid fever, 40; measles, 20; whooping-cough, 19; diphtheria and croup, 17, and influenza, 10. The number of deaths from typhoid fever was the same in June as in May. The deaths from measles fell from 41 in May to 20 in June, while the deaths from whooping-cough rose from 10 to 19, the deaths from diphtheria and croup being not far from the same in each month, 22 for May and 17 for June.

MEETING OF STATE BOARD OF HEALTH.

The quarterly meeting of the State Board of Health was held July 6th at the State Capitol building, Sacramento. There was a general review of the work done by the Secretary, and a discussion and outlining of future work. It was decided to appeal to the United States Public Health and Marine Hospital Service to investigate the epizoötic among the squirrels, in order to ascertain if it was in any way communicable to man. A resolution was adopted congratulating the Health Commission of San Francisco on their effective work in maintaining sanitary conditions after the recent fire, and another thanking Walter Wyman, *Surgeon-General* United States Public Health and Marine Hospital

Service, and his officers for the help rendered the State after that catastrophe.

Perhaps the most important work done was the adoption of the following resolution, after a discussion of water pollution:

I move that the Secretary be instructed to notify again the various cities and towns, including Sacramento, which are now polluting the Sacramento river by depositing sewage either directly or indirectly in the river channel—that this is in direct violation of the State law, which it is the duty of the board to execute; and at the same time to offer his services, if desired, in indicating the best method of sewage disposal in each particular case.

The board has, for three years, been working to purify and keep pure the water supply of the State, and it is a satisfaction to report that many towns have already taken steps to destroy their sewage. Others seem not to feel the necessity of such action, and it is evident to the board that legal means must be taken in order to protect the lives of the people using the water thus polluted. This is not pleasant nor profitable to the city or town, but it is the only way left open.

REPORTS FROM HEALTH OFFICERS.

Dr. E. N. Mathis, Los Angeles County, reports that "Many complaints come from mountain resorts that picnickers bathe and wash dishes and garments in mountain streams, thus contaminating the water."

We have frequently called attention in the Bulletin and elsewhere to this danger to the public health. Already one epidemic of typhoid fever in the State has been traced to this source, and no doubt many isolated cases result from a like cause. The State law and regulations against contaminating the water of streams used for domestic purposes are ample and arrests should be made for their violation.

* * *

Dr. Charles Pratt, Fallbrook, San Diego County, reports whooping-cough and measles as epidemic. There were 12,866 deaths from measles in 1900 in the United States, not a few of them the victims of the popular idea that measles is a mild disease, and devoid of danger. Many parents purposely expose their children to it, sometimes with the result of losing them. All cases of measles should be carefully isolated, and thorough disinfection practiced.

* * *

Dr. Strong, San Bernardino County, reports a smallpox case, which exposed many, but vaccination of all contacts stopped spread of disease.

* * *

Captain J. W. Howell, Napa, reports health conditions fairly good. Typhoid disappearing. The State has been an offender in the Napa Valley in allowing the sewage of the Veterans' Home at Yountville to drain into the Napa river. The efficient commandant of that institution, Dr. H. G. Burton, notified the State Board of Health of the condition, and a system of sewage destruction is being worked out.

* * *

Dr. S. Z. Peoples, Petaluma, has a few cases of smallpox on hand. They came, as is quite common, from cases of chicken pox. The doctor

proposes to vaccinate the whole town, and if he succeeds he will have no more trouble until the inflow of population gives him more non-immunes.

* * *

Dr. S. H. Rantz, Placerville, reports a few cases of malaria.

Have the Trustees pass an ordinance making the breeding place of mosquitoes a public nuisance, and then enforce it, and malaria will leave with the pests.

* * *

Dr. W. H. Cope, Pleasanton, Alameda County, who reported a case of smallpox last month, reports no cases coming from it. The case was handled admirably, and no chance given for infection to spread.

* * *

Dr. J. M. Wheat, Redlands, reports smallpox contracted in Los Angeles, and typhoid fever from Arizona. Also three cases of diphtheria, the first of which was not reported. If all cases of communicable diseases were promptly reported to the health officers such an unnecessary spread of disease would be avoided.

* * *

Dr. T. P. Peery, Sutter County, reports scarlet fever stamped out by strict quarantine.

* * *

Dr. H. G. Plymire, San Mateo County, has numerous cases of typhoid, the cause of which he is investigating. Water is reported safe, and milk is from different sources. Watch out for the flies and personal contact. We give these sources of spread too little attention.

* * *

Dr. S. F. Priestley, San Joaquin County, has numerous cases of smallpox on hand, but prompt and thorough work with vaccine and quarantining is checking its spread.

* * *

Dr. H. G. McGill, Livermore, says: "Physicians evidently do not understand their duty in regard to 'reportable diseases.'" This is probably so, although the State laws and regulations have been sent to them. If the County Medical Societies would devote an hour at some meeting discussing this subject they would surely see the use of such reports. The municipal and county authorities should furnish the health officer with printed postal cards to be distributed to each physician. This was urged in last month's Bulletin.

* * *

Dr. A. P. Tarter, Tehama County, has perhaps had the hardest task of any in the State dealing with smallpox. It came from chicken pox, and spread extensively in the mountains, and also at Corning, before the health officer was informed of the true nature of the disease; but with characteristic energy and skill he has circumscribed the disease, and has it under control.

* * *

Dr. A. B. Gilliland, Cottonwood, Shasta County, and J. A. Young, health officer, Wilmington, report localities free from contagious disease *and very healthy.*

Dr. N. E. Richardson, Salinas City, sends card showing no reportable sickness, and promising a copy of semi-annual report to this board. As the doctor has been very active in sanitary matters we expect an interesting report.

* * *

Dr. Theo. Snypp, Placer County, has been battling with smallpox in two or three localities in the county. Owing to the difficulty of enforcing quarantine on the ranches, the disease spread quite extensively.

* * *

Dr. R. B. Davy, Downieville, has no communicable diseases to report, neither has Dr. Charles F. Miller of Gardena.

* * *

Dr. Wm. Thurston, Orland, reports malaria and chicken pox. We sincerely hope the latter is not what it has proved to be in several other cases—smallpox.

* * *

J. W. Sumner, Kernville, has no reportable diseases.

* * *

Dr. Ralph W. Avery, South Pasadena: Croup 2, measles 6, smallpox 2, erysipelas 1, chicken pox 2. No new foci of smallpox. All quarantines raised. Only personal cases; many not reported.

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Dr. F. W. Coleman, Lodi: 11 cases of malaria, 1 of measles, and 2 of pneumonia.

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Dr. S. W. R. Langdon, Stockton: Tuberculosis 4, pneumonia 1, diphtheria 1, smallpox 1.

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Dr. C. D. Watson, Ontario District: No contagious diseases.

* * *

Dr. W. W. Roblee, Riverside: Tuberculosis 14, pneumonia 3, scarlet fever 1, typhoid fever 2, diphtheria 4, influenza 13, erysipelas 2, chicken pox 1.

* * *

Dr. T. L. Magee, San Diego: Typhoid 2, measles 19.

* * *

Dr. J. Jones, Nevada County: Tuberculosis 9, pneumonia 4, typhoid fever 1, diphtheria 2, croup 1, measles 1, whooping-cough 2, malaria 10, smallpox 3, influenza 6, erysipelas 3, trachoma 1.

* * *

Dr. James A. Young, Wilmington: No infectious or contagious diseases. Conditions of health excellent.

* * *

Dr. B. Woodbridge, Rocklin: Reports that there have been no more cases of typhoid fever since the pollution of the water was stopped. Wherever typhoid exists the water should be closely watched, for it is one great source of dissemination.

Dr. T. M. Hayden, Fresno, has succeeded in getting a pretty complete report from the physicians. With no epidemic, but a few cases of scarlet fever, measles, malaria, typhoid and one of diphtheria. Tuberculosis 12, pneumonia 1, scarlet fever 4, typhoid fever 3, diphtheria 1, measles 2, malaria 15, influenza 10, erysipelas 5, cerebro spinal meningitis 1, trachoma 5, chicken pox 1.

* * *

Fred T. Bond, M. D., Vallejo, reports: Tuberculosis 2, diphtheria 1, measles 10, and cerebro spinal meningitis 1.

* * *

Dr. J. I. Clark, Santa Ana, has had a case of leprosy to deal with, and no doubt feels the need of a national institute where lepers can be sent. Typhoid fever 1.

* * *

Dr. William F. Freeman, Needles: Tuberculosis 6, measles 2; all imported.

* * *

Dr. E. C. Houston, Bieber, reports 10 cases of whooping-cough and 3 of malaria.

* * *

Dr. Wm. Simpson, Santa Clara County: No epidemics. Efforts being made to keep streams from pollution.

* * *

Dr. J. E. Taylor, Trinity County: Smallpox cases well, with no new ones.

* * *

Dr. Frances L. Newton, Woodland: One case of diphtheria.

* * *

Dr. O. W. Steinwand, Selma: One case typhoid. General health good.

* * *

The above comprises the reports from health officers throughout the State for the month of June. It is a distinct advance over former months, and is, therefore, encouraging, but it is far below what it should be in numbers. These reports do not show the *exact* condition in any place, nor are they all of equal reliability. In some towns all physicians report, in others part of them, and in too many none. This makes it impossible for the health officer to make reliable reports to this office, and we, in turn, are deprived of needed information.

There is a noticeable absence of reports from the large cities. The delay in printing their report is no doubt caused by tardy reports to them.

In the interest of the State and the people, who look to us to guard their sanitary and health conditions, we urge physicians to report promptly all cases of communicable disease to the health officer, and for him to be equally prompt in reporting to the State board.

It is a satisfaction to record the fact that we have no epidemics at present. By active work and vaccination smallpox is rapidly dying out. Measles and scarlet fever are prevalent in some parts, but not to the extent of being epidemic, and are generally being well handled. *Typhoid is also less* prevalent, but is still too broadly scattered.

This disease is always present in the State, but prevails mostly in towns furnished with water from mountain streams. This water is pure as water can be in nature, when it starts on its course, but is sadly polluted long before it reaches its destination. A stream flowing through a farming or stock country will naturally gather a certain amount of pollution, but this is not what does the most harm. It is the drainage from the concentration of animals in corrals or from human habitations that causes trouble, and which should be excluded. Every water supply should be inspected from source to faucet frequently, and all means of contamination eliminated. If it can not be kept in a reasonable degree of purity, it should be filtered. This, however, is quite expensive, and for the small mountain towns impossible. The protection of the streams, however, is neither expensive nor impossible. There is not an individual house or a town in the State but what can, at a reasonable expense, dispose of its sewage in other ways. The laws are ample to protect the people, and the local authorities are there to enforce the laws. The law requires that every town have a health board, and assigns certain sanitary work to it. This board should in all cases be in existence and do its duty. The State Board of Health stands ready at all times to help, but it can not possibly, in such an immense State, visit and inspect all water supplies and sewerage systems. That must be done primarily by the local board, but where trouble is found that can not be readily adjusted, the State board will gladly help. Typhoid can, and should, be reduced to a minimum in our State. It needs only the active coöperation of the physicians and health officers; the former to see that all discharges from typhoid fever are disinfected and destroyed, the latter to keep pure the water supply.

CLEANLINESS SHOULD BE TAUGHT IN SCHOOLS.

The biennial report of the Department of Health of Chicago publishes the following from the Massachusetts Association of Boards of Health. It is as good and useful in California as in Massachusetts or Illinois, and we reproduce it in full, hoping it will be seen and heeded by every teacher in the State. It is impossible to estimate the amount of sickness or the number of deaths resulting from the uncleanly habits of children—habits that can and should be checked. Children, however, are not the only ones at fault, for the parents retain the habits of their childhood and by example teach them to the children, and so the endless chain of unclean habits linked with disease runs on for generations, gaining strength as it goes and dragging down to the grave many bright hopes:

The poisons of some of the common and also of the most loathsome diseases are frequently contained in the mouth. In such cases anything which is moistened by the saliva of the infected person may, if it touches the lips of another, convey disease. The more direct the contact the greater the danger.

It is the purpose of health officials to keep in isolation all persons having communicable diseases during the time that they are infectious. But in many cases this is impossible. Little restraint is put on certain mild diseases, as measles, whooping-cough, chicken pox, and mumps, and even such diseases as diphtheria, scarlet fever, and tuberculosis are frequently so mild as to be unnoticed, and children affected with them mingle freely with others. It is probable that in such cases one of the chief vehicles of contagion is the secretion of the mouth and nose.

It is believed that much can be done to prevent contagion by teaching habits of cleanliness. *But if such instruction is to be effectual it must be continuous.* The

teacher should notice and correct violations of these rules as habitually as violations of the more formal school rules are corrected.

Even if the question of disease and contagion did not enter into the matter at all, the subject ought to be given more attention by teachers. Our schools should not only teach reading, writing, and arithmetc, but it is, perhaps, quite as important that they should inculcate cleanliness, decency, refinement, and manners.

Cleanliness should be taught for its own sake, even if it had no relation whatever to health.

Children should be taught: Not to spit; it is rarely necessary.. To spit on a slate, floor or sidewalk is an abomination. Not to put the fingers into the mouth. Not to pick the nose. Not to wet the fingers with saliva in turning the leaves of books. Not to put pencils into the mouth or moisten them with the lips. Not to put money into the mouth. Not to put pins into the mouth. Not to put anything into the mouth except food and drink and the tooth brush. Not to swap apple cores, candy, chewing gum, "all-day slickers," half-eaten food, whistles or bean blowers, or anything that is habitually put into the mouth.

Teach the children to wash the hands and face often. See that they keep them clean. If a child is coming down with a communicable disease it is reasonable to believe that there is less chance of infecting persons and things if the hands and face are washed clean and not daubed with the secretions of the nose and mouth.

Teach the children to turn the face aside when coughing and sneezing—especially if they are facing another person, or when at table.

Children should be taught that their bodies are their own private possessions; that personal cleanliness is a duty; that the mouth is for eating and speaking, and should not be used as a pocket, and that the lips should not take the place of fingers.

CALIFORNIA STATE BOARD OF HEALTH.

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STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*..... University of California, Berkeley

STATISTICS OF BIRTHS: 1905-1906.

Summary.—For 1905-1906, the first year covered by the new birth registration law in California, there were reported a total of 20,909 living births.

San Francisco reported 5,250 births, or 25.1 per cent of all, followed by Los Angeles city, 3,128, and Oakland, 1,397; the cities with the next highest totals being Fresno, Sacramento, San José, Berkeley, Pasadena, and San Diego.

Among the counties, exclusive of freeholders' charter cities, the highest totals are for Santa Clara, 688; Los Angeles, 529, and Fresno, 429; followed by San Bernardino, Riverside, Orange, Tulare, Alameda, Butte, and San Joaquin.

For a State population of 1,784,521 in 1905, estimated conservatively by the Census Bureau method with slight modifications, the 20,909 births in 1905-1906 give a rate of 11.7 per 1,000 population.

The birth-rates are highest for the following cities: Fresno, 29.3; Santa Barbara, 26.9; Pasadena, 25.5; Santa Cruz, 25.0; Grass Valley, 23.7; Berkeley, 19.9, and San Bernardino, 18.6. The rates are also above 15.0 for the cities of Los Angeles, Napa, Watsonville, San José, Vallejo, and Oakland, as well as for the counties of Del Norte, Alpine, Riverside, Modoc, Tulare, Santa Clara, and Stanislaus.

The birth-rate is 14.1 for the twenty cities having freeholders' charters, against only 9.2 for all the rest of the State. Outside these cities where health officers are the registrars it is difficult to make physi-

cians register births, but, nevertheless, several County Recorders as registrars for rural communities have secured complete returns.

The 20,909 babies included 10,835 boys and 10,074 girls, the per cent male being 51.8 and female 48.2. The white babies numbered 20,537, or 98.2 per cent of all, while there were 156 Japanese, 141 Chinese, 70 negroes, and 5 Indians.

No marked differences appear between localities, either in the proportion of the sexes or in the race distribution, though there are great differences in the nativity of the white mothers, especially between sections north and south of Tehachapi, and also between the metropolitan area and the rural counties.

The nativity of the 20,537 white mothers is as follows: Born in California, 7,683, or 37.4 per cent; born in other states (including 172, or 0.8 per cent, of unknown nativity), 7,478, or 36.4 per cent; and foreign born, 5,376, or 26.2 per cent.

South of Tehachapi the great bulk of the white mothers, 59.6 per cent of all, were born elsewhere in the United States than California. But north of Tehachapi, especially far north, the bulk were natives of the Golden State, the per cent born here being 54.7 for Northern California and 43.2 for Central California.

In Northern and Central California, except in San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), the per cent of white mothers born elsewhere in the United States than California is much greater than the per cent foreign born. For the metropolitan area, comprising San Francisco and the other bay counties, the per cents born in the Golden State and in other States are lower than for the rural counties of Northern and Central California. Conversely, the per cent foreign born among the white mothers is much higher for the metropolitan area than for the rural counties.

City and County Totals.—In accordance with the law of 1905, requiring all County Recorders and the Health Officers of the twenty cities having freeholders' charters, as ex officio local registrars, to transmit monthly to the State Registrar the original birth certificates filed with them, there have been registered in the State Bureau of Vital Statistics a total of 20,909 living births, 10,652 for the last half of 1905 and 10,257 for the first half of 1906. The destruction of over half a month's records for San Francisco in the fire of April 18-20, and the incomplete registration of births in the confused times succeeding this calamity caused the half-year total for that city to fall from 3,309 in 1905 to 1,941 in 1906, and also explains the slight falling off in the State total, the number of births registered outside the metropolis being considerably greater for the first six months of 1906 than for the last six months of 1905.

For births, the registration districts are cities having freeholders' charters, the rural portions of counties containing these cities, and rural counties without any such cities. Of the total 20,909 living births reported for the fiscal year 1905-1906, as many as 5,250, or 25.1 per cent of all, were registered in the City and County of San Francisco, notwithstanding the effects of the great fire in April. Among the freeholders' charter cities Los Angeles is second, with 3,128 living births for the year, and Oakland is third with 1,397. The next highest city totals reported to the State Bureau are: Fresno, 390; Sacramento, 389;

San José, 379; Berkeley, 370; Pasadena, 287, and San Diego, 238. Between 100 and 200 living births were registered in Grass Valley, San Bernardino, Santa Barbara, Santa Cruz, Stockton, and Vallejo, and less than 100 for the year in Napa, Salinas, Santa Rosa, and Watsonville. Eureka is the only city having a freeholders' charter for which no vital statistics at all were reported in 1905-1906.

The highest totals for rural counties or the rural portions of counties with freeholders' charter cities are as follows: Santa Clara (outside San José), 688; Los Angeles (outside Los Angeles city and Pasadena), 529; Fresno (outside Fresno city), 429; San Bernardino (outside San Bernardino city), 349; Riverside, 341; Orange, 327; Tulare, 297; Alameda (outside Berkeley and Oakland), 288; Butte, 244, and San Joaquin (outside Stockton), 227. Between 100 and 200 living births were registered in the following rural counties or portions of counties: Calaveras, Contra Costa, El Dorado, Kern, Madera, Marin, Mendocino, Monterey (outside Salinas), Nevada (outside Grass Valley), Sacramento (outside Sacramento city), San Luis Obispo, San Mateo, Santa Barbara (outside Santa Barbara city), Shasta, Siskiyou, Solano (outside Vallejo), Sonoma (outside Santa Rosa), Stanislaus, and Ventura.

In considering the rank of cities and counties in births reported, it should be understood that the returns are affected not only by the number of living births which actually occurred, but also by the proportion of those which occurred that have been duly registered as required by law. Comparison of the returns for various registration districts indicates that there are marked differences between the districts in the extent to which local registrars have secured a thorough enforcement of the registration law or in the extent to which physicians and midwives have obeyed the law by promptly registering all births.

Birth-rates.—This appears clearly when birth-rates are considered. In order to calculate rates the population of California in 1905 has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905. For the three principal cities arbitrary estimates have been made because of their exceptionally rapid growth, the estimate for San Francisco in 1905 being 450,000, for Los Angeles 180,000, and for Oakland 90,000. The variations from the standard method made by the Census Bureau in published estimates for Berkeley and San Diego have also been followed, while for other cities the same method of estimating population has been applied as explained above for counties.

For a State population, thus estimated, of 1,784,521 in 1905, the 20,909 living births reported for 1905-1906 give a birth-rate of 11.7 per 1,000 inhabitants. This is surpassed or equaled by the birth-rates for the thirty-one registration districts shown in the table below, the districts being arranged in descending order of birth-rates. The word "rural" after a county indicates that the figures relate to the county exclusive of its freeholders' charter city or cities. For the information of those interested in comparing birth-rates, or checking the calculations, *the table gives* the estimated population, 1905, and the living *births, 1905-1906,* as well as the birth-rate per 1,000 population.

TABLE 1.—*Registration Districts with Birth-rates above or equal to the State average (11.7): 1905-1906.*

Registration District.	Estimated Population: 1905.	Living Births: 1905-1906.	Birth-rate per 1,000 Population.
Fresno city	13,295	390	29.3
Santa Barbara city	6,949	187	26.9
Pasadena city	11,235	287	25.5
Santa Cruz city	5,681	142	25.0
Grass Valley city	4,801	114	23.7
Berkeley town	18,600	370	19.9
San Bernardino city	7,219	134	18.6
Del Norte county	2,408	43	17.9
Alpine county	509	9	17.7
Los Angeles city	180,000	3,128	17.4
Riverside county	20,140	341	16.9
Napa City	4,036	68	16.8
Modoc county	5,121	85	16.6
Watsonville city	4,218	69	16.4
San José city	23,220	379	16.3
Tulare county	18,375	297	16.2
Vallejo city	8,778	141	16.1
Santa Clara county, rural	43,102	688	16.0
Oakland city	90,000	1,397	15.5
Stanislaus county	9,550	147	15.4
Fresno county, rural	29,784	429	14.4
Orange county	22,750	327	14.4
San Bernardino county, rural	24,222	349	14.4
Butte county	17,117	244	14.3
Madera county	7,247	103	14.2
El Dorado county	8,986	124	13.8
Lake county	6,017	82	13.6
Santa Barbara county, rural	13,575	180	13.3
Sacramento city	30,732	389	12.7
San Diego city	18,900	238	12.6
San Francisco city	450,000	5,250	11.7

In addition to the districts ranked in the above table, the only ones with annual birth-rates of at least 10.0 are Santa Rosa city and the counties of Calaveras, Marin, San Benito, San Mateo, San Joaquin (outside Stockton), Sierra, and Sutter.

It will be observed that the registration districts with high birth-rates include nearly all the cities having freeholders' charters, Salinas with 9.8 and Stockton with 8.8 being the only cities with rates below 10.0, and Eureka being the only freeholders' charter city not reporting vital statistics. In fact, for the twenty freeholders' charter cities, with a total estimated population of 916,459, the 12,962 births give a birth-rate of 14.1 per 1,000 inhabitants. But for all the rest of the State, with an estimated population of 868,062, the 7,947 births give a birth-rate of only 9.2, or 4.9 less in each 1,000 than for the cities. As a rule, it is more difficult to secure complete registration of births in rural districts than in urban centers, though there are several counties where the Recorders as local registrars have obtained satisfactory returns of births.

Sex and Race.—The proportion of the sexes among the 20,909 children born in 1905-1906 is: Male, 10,835, or 51.8 per cent; and female, 10,074, or 48.2 per cent. The race distribution is: White, 20,537, or 98.2 per cent; Japanese, 156, or 0.8 per cent; Chinese, 141, or 0.7 per cent; negro, 70, or 0.3 per cent; Indian, 5, or less than one-tenth of 1 per

cent. The per cents male and female are the same for the white as for all children, 51.8 and 48.2 per cent, respectively, but among the 372 non-Caucasians the males were 198, or 53.2 per cent, and the females 174, or 46.8 per cent.

No marked differences appear between various sections of California, either in the proportion of the sexes or in the race distribution. Thus, among the several geographic divisions into which the fifty-seven counties of the State have been grouped the per cent male varies only from 52.9 for the interior counties of Central California to 51.1 for the interior counties of Northern California and for the coast counties of Central California. Similarly, the per cent white ranges only from 99.1 for the six counties of Southern California other than Los Angeles to 97.1 for the City and County of San Francisco.

Nativity of Mothers.—However, there are great differences between certain sections of the State in the nativity of the mothers of the white children. These differences are shown in the table below, giving the number and per cent of white mothers born in California, born in other states, and foreign born. The few of unknown nativity, numbering only 172, or 0.8 per cent of all in the entire State, have been included with those born elsewhere in the United States than California. Figures are shown for each of the geographic divisions of the State heretofore described in the Monthly Bulletin (Vol. I, No. 8, p. 55, January, 1906), and also for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in contrast with the rural counties of Northern and Central California.

TABLE 2.—*White Mothers Classified by Nativity, with per cent Distribution, for Geographic Divisions: 1905-1906.*

Geographic Division.	Total White Mothers.	Born in California.	Born in Other States.	Foreign Born.	Per Cent.		
					Born in California.	Born in Other States.	Foreign Born.
THE STATE	20,537	7,683	7,478	5,376	37.4	36.4	26.2
Northern California	2,038	1,114	650	274	54.7	31.9	13.4
Coast counties	681	331	220	130	48.6	32.3	19.1
Interior counties	1,357	783	430	144	57.7	31.7	10.6
Central California	12,618	5,456	3,325	3,837	43.2	26.4	30.4
San Francisco	5,098	2,136	943	2,019	41.9	18.5	39.6
Other bay counties	2,481	1,039	723	719	41.9	29.1	29.0
Coast counties	1,752	782	548	422	44.6	31.3	24.1
Interior counties	3,287	1,499	1,111	677	45.6	33.8	20.6
Southern California	5,881	1,113	3,503	1,265	18.9	59.6	21.5
Los Angeles	3,881	598	2,360	923	15.4	60.8	23.8
Other counties	2,000	515	1,143	342	25.8	57.1	17.1
Northern and Central California	14,656	6,570	3,975	4,111	44.8	27.1	28.1
Coast counties	10,012	4,288	2,434	3,290	42.8	24.3	32.9
Interior counties	4,644	2,282	1,541	821	49.1	33.2	17.7
Metropolitan area	7,579	3,175	1,666	2,738	41.9	22.0	36.1
Rural counties	7,077	3,395	2,309	1,373	48.0	32.6	19.4

It appears from the preceding table that of the 20,537 white mothers bearing children in California in 1905-1906, 7,683, or 37.4 per cent, were natives of the Golden State; 7,478, or 36.4 per cent, were natives of other states, and 5,376, or 26.2 per cent, were foreign born. The per cents for Southern California, however, differ greatly from those for either Northern or Central California.

South of Tehachapi the great bulk of the white mothers, 59.6 per cent of all, were born in other states than California. In Los Angeles county the per cent foreign born is even greater than the per cent born in California, though in the other six counties south of Tehachapi the California born mothers at least outnumber the foreign born.

North of Tehachapi, especially far north, the bulk of the white mothers were natives of the Golden State, the per cent born here being 54.7 for Northern California and 43.2 for Central California. In each division of Northern and Central California, except only in San Francisco, the per cent born elsewhere in the United States than California is greater, and except for the other bay counties is much greater than the per cent foreign born.

In San Francisco, as in the rest of Northern and Central California, most of the white mothers were natives of the Golden State. In the metropolis, however, the native daughters bearing children are followed closely by the foreign born, the per cent being 41.9 for the former and 39.6 for the latter, while those born elsewhere in the United States than California comprise only 18.5 per cent of all the white mothers. In the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), where, as in San Francisco, 41.9 per cent of the white mothers were born in California, the per cent born in other states is about the same as the per cent foreign born, 29.1 against 29.0.

For the metropolitan area, comprising San Francisco and the other bay counties, the per cents of white mothers born in California and in other States are lower than the corresponding per cents for the remaining rural counties north of Tehachapi. Conversely, the per cent foreign born is much higher for the metropolitan area than for the rural counties of Northern and Central California.

VITAL STATISTICS FOR JULY.

Summary.—The vital statistics reported for July are as follows: Living births, 1,720; deaths, exclusive of stillbirths, 2,180, and marriages, 1,885. For an estimated State population of 1,882,483 in 1906 the returns for July give the folowing annual rates: Births, 11.0; deaths, 13.9, and marriages, 12.0, per 1,000 population.

As usual, tuberculosis was the leading cause of death, and typhoid fever was the most fatal epidemic disease. Between June and July there was a decline in the proportion of all deaths due to diseases of the respiratory system, but, on the other hand, there was a rise in the proportion for diseases of the digestive system, especially infantile diarrhea.

Causes of Death.—The following table gives the number of deaths due to certain important causes for the State in July, as well as the proportion from each cause per 1,000 total deaths for both July and June:

Cause of Death.	Deaths, July.	Proportion per 1,000: July.	June.
ALL CAUSES	2,180	1,000.0	1,000.0
Typhoid fever	41	18.8	16.4
Malarial fever	16	7.3	2.5
Smallpox	1	0.5	2.9
Measles	6	2.7	8.2
Scarlet fever	2	0.9	2.0
Whooping-cough	6	2.7	7.8
Diphtheria and croup	12	5.5	7.0
Influenza	2	0.9	4.1
Other epidemic diseases	18	8.3	10.7
Tuberculosis of lungs	283	129.8	133.2
Tuberculosis of other organs	53	24.3	24.2
Cancer	111	50.9	56.6
Other general diseases	62	28.4	34.0
Meningitis	53	24.3	17.6
Other diseases of nervous system	192	88.1	82.4
Diseases of circulatory system	264	121.1	118.1
Pneumonia and broncho-pneumonia	75	34.4	63.5
Other diseases of respiratory system	37	17.0	26.2
Diarrhea and enteritis, under 2 years	140	64.2	52.5
Diarrhea and enteritis, 2 years and over	36	16.5	19.3
Other diseases of digestive system	120	55.1	44.3
Bright's disease and nephritis	123	56.4	60.3
Childbirth	22	10.1	7.4
Early infancy	107	49.1	37.3
Suicide	51	23.4	17.6
Other violence	185	85.0	80.4
All other causes	162	74.3	63.5

Tuberculosis, as usual, was the leading cause of death in July, with diseases of the circulatory and nervous systems next in order. The proportion of all deaths due to pneumonia and other diseases of the respiratory system was much less in July than in June. On the other hand, there was an appreciable rise between June and July in the proportion of all deaths caused by diseases of the digestive system, especially diarrhea and enteritis among young children.

Typhoid fever is again the most fatal epidemic disease in the State. The proportion of all deaths due to typhoid fever was even greater for July than for June, though the proportions for all other epidemic diseases declined.

MENTAL HEALTH OF SCHOOL CHILDREN.

As the end of the school year approached the newspapers brought the usual crop of sad stories with regard to children on whose developing mental faculties the pressure of school work had made serious havoc. At the end of May there began to be occasional reports of children disappearing from their homes, running away from school, and otherwise making themselves subjects for newspaper comment more than at any other season of the year. During June the stories of children, especially girls, who were noted as acting queerly as the result of overwork at school, became more frequent. Toward the end of the month there were a few reported suicides. In most of the cases a direct connection between worry over school work, competition for prizes, and preparation for examinations could be traced. Of course, we realize that there is likely to be considerable sensational exaggeration in such stories. They make toothsome morsels for the sensational newspaper, *but there* is no doubt that there is a large germ of truth

in most of the stories, and that, unfortunately, there is every year during June an increased number of reported developments of mental disturbance in children because of the burden of school work placed on them at this time.

Almost needless to say, the children who develop such mental peculiarities and degenerate traits are not the robust, either of mind or of body. Especially is it true that in most cases a distinct neurotic family history can be traced. This, of itself, however, should have proved a warning of the necessity of guarding such children against the stress and strain of competitive school work. Unfortunately, little attention is likely to be paid to this. Family physicians, however, usually are aware of the dangers in this matter, and should warn parents of the possibility of morbid results. At this season of the year the medical inspectors of the schools should take special precautions in order to see that any pupil developing even slight mental peculiarities should at once be reported to them. There is serious danger of neglect and delay in this matter. Even with the exercise of all due care it seems not unlikely that in the modern over-strenuosity of education developing brains will suffer occasional lamentable harm. If even a few children, however, each year can be saved from the more serious manifestations of mental disturbance, enough will have been accomplished to reward amply every effort that has been taken.

It is now, while the subject is fresh, that the resolution with regard to prophylactic measures for another year should be taken. There seems no doubt that it will eventually be necessary to instruct the teachers as to the initial symptoms that are displayed in the commoner mental disturbances of children, in order that the strain of study may be then at once interrupted. This is a work that in its far-reaching benevolence will appeal to all who are interested in making child life more happy and less amenable to the stresses of modern civilization. No effort can seem too great, no warning exaggerated, that concerns school children under such circumstances, since it is evident their future careers and life usefulness are at stake.—*Journal A. M. A.*

The above article is quoted in its entirety, for no part should be left out, as it applies with the greatest force to California schools. It seems to be the effort from primary grade to university to crowd the child's brain to the utmost, and each year we see wrecks, mental and physical, leaving our schools.

The object of education is to make better citizens, and this is defeated by the very efforts put forth for its accomplishment. The medical inspectors should be a part of our school organizations, and the position should be filled by one skilled in diagnosis, deeply interested in child life, and with a willingness to work a little extra time for the good of the cause.

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ARCHIBALD R. WARD, D.V.M., *Director*.....University of California, Berkeley

STATISTICS OF MARRIAGES: 1905-1906.

Summary.—Altogether 17,932 marriages were reported to the California State Bureau of Vital Statistics in 1905–1906, the first year covered by the new law requiring marriages to be registered.

San Francisco reported 4,230 marriages, or 23.6 per cent of the State total, despite the loss of records in April, 1906.

There were also over 2,000 marriages for the year in Los Angeles and Alameda counties; between 600 and 1,000 in Santa Clara, Sacramento, and Marin; and between 400 and 500 in Fresno, San Diego, San Joaquin, San Bernardino, and Orange.

For an estimated State population of 1,784,521 in 1905 the 17,932 marriages in 1905–1906 give a rate of 10.0 per 1,000 population, though complete returns from Los Angeles county for the year would make the State rate 11.1 instead.

The marriage-rate is higher for the seven counties of Southern California than for the fifty north of Tehachapi. The rate is also higher for the metropolitan area, comprising San Francisco and the other bay counties, than for the rural counties of Northern and Central California.

Among the individual counties, Marin shows the highest marriage-rate, 36.4 per 1,000 population, followed by Orange 18.5, San Mateo 17.9, Sacramento 17.0, and Los Angeles 15.6 (corrected rate). The marriage-rates are also above the State average, 10.0, for the following counties: San Bernardino, Santa Clara, Alameda, Riverside, San Diego, San Joaquin, Fresno, Tulare, Santa Barbara, Stanislaus, and San Luis Obispo.

The statistics indicate that there is a decided tendency for persons living in rural counties to be married at the largest city easily accessible. This seems the readiest explanation of the relatively high marriage-rates not only for the metropolitan area in Northern and Southern California and for Los Angeles county in Southern California, but also for the counties containing such cities as Sacramento, San José, Stockton, Fresno, Visalia, Modesto, and San Luis Obispo.

There is also a counter movement by which residents of very large cities, like San Francisco or Los Angeles, prefer to be married in suburban counties. Thus it happens that the marriage-rates are much higher for Marin, San Mateo, and Alameda counties than for the metropolis itself, and that in Southern California the rate is highest for Orange rather than for Los Angeles county. This movement is particularly marked on San Francisco Bay, where San Rafael, in Marin county, is a veritable Gretna Green, especially, as shown later, for divorcees.

In 13,182 of the 17,932 marriages in 1905–1906, or 73.5 per cent of all cases, the marriage was the first for both parties. The per cent of first marriages is highest, 76.8, for the coast counties of Northern California, followed by 76.2 for the interior counties of Central California and 76.0 for San Francisco.

While 1,958 single men were married to widowed or divorced women, only 1,450 single women were married to widowed or divorced men. In fact, only nine of the fifty-seven counties show exceptions to the rule that there are more unions of bachelors with widows than of maids with widowers.

In 1,342 instances, or 7.5 per cent of all, the marriage was the second or over of both parties. The per cent of marriages where both parties had been married before is particularly high for Southern California, especially outside Los Angeles, and for the bay counties other than San Francisco. Though among the eight minor geographic divisions, San Francisco has the lowest per cent of such marriages, yet the per cent is somewhat higher for the metropolitan area than for the rural counties of Northern and Central California.

Altogether 15,140 or 84.4 per cent of the grooms were single, 1,655 widowed, and 1,137 divorced; while of the brides 14,632 or 81.6 per cent were single, 1,891 widowed, and 1,409 divorced. The widows outnumber the widowers by 236 or 14.3 per cent, and among the divorced the women exceed the men by 272 or 23.9 per cent.

The per cent of widowers is particularly high only in Southern California, especially outside Los Angeles, but the per cent of widows is relatively high, not only in Southern California, but also in both the coast and interior counties of Northern California.

The per cent divorced, both among grooms and brides, is highest for the bay counties other than San Francisco, and next for Southern California, especially outside Los Angeles, being highest south of Tehachapi in Orange county.

Though the per cent of divorced brides is 7.9 for all California and only 7.4 for San Francisco, it is 8.9 for Alameda, 9.0 for Contra Costa, 14.1 for San Mateo, and 15.5 for Marin. It appears, therefore, that the tendency for residents of the metropolis to be married in suburban counties is particularly strong among divorcees.

County Totals.—Under the law of 1905 requiring County Recorders as local registrars to transmit to the State Registrar the original marriage certificates filed with them each month, 17,932 marriages were registered in the California State Bureau of Vital Statistics for 1905–1906. The total for the last half of 1905 was 8,338, against 9,594 for the first half of 1906.

Table 1, below, shows the counties for which at least 100 marriages were reported to the State Bureau of Vital Statistics in 1905–1906:

TABLE 1.—*Rank of Counties with at Least 100 Marriages: 1905–1906.*

Rank. County.	Marriages: 1905–1906.	Rank. County.	Marriages: 1905–1906.
THE STATE	17,932	17. Tulare	205
1. San Francisco	4,230	18. Mendocino	181
2. Los Angeles	*2,241	19. San Luis Obispo	179
3. Alameda	2,221	20. Humboldt	170
4. Santa Clara	921	21. Napa	159
5. Sacramento	826	22. Solano	158
6. Marin	619	23. Contra Costa	155
7. Fresno	491	24. Monterey	153
8. San Diego	480	25. Kern	140
9. San Joaquin	456	26. Ventura	137
10. San Bernardino	453	27. Shasta	132
11. Orange	421	28. Nevada	118
12. Riverside	266	29. Kings	112
13. Sonoma	237	30. Siskiyou	111
14. San Mateo	235	31. Stanislaus	104
15. Santa Barbara	226	32. Butte	103
16. Santa Cruz	225	Remaining 25 counties	1,067

*Returns incomplete.

Despite the destruction of certificates for more than one half of April, 1906, and incomplete registration in the confusion following the great fire, San Francisco with 4,230 marriages properly registered contributes 23.6 per cent of the State total. The returns for Los Angeles cover little over half a year, the first certificates received having been for December, 1905. Complete returns for the whole twelve months would have made the total for Los Angeles county nearer that for San Francisco. In Alameda county, as well as San Francisco and Los Angeles, over 2,000 marriages were registered in 1905–1906.

With regard to the number of marriages registered, the counties fall into several groups. First, there is a group of 3 counties, each with over 2,000 marriages in the year; next comes another group of 3 counties, each with between 600 and 1,000 marriages in the year; then a group of 5, each with from 400 to 500 marriages; then a group of 6, with from 200 to 300 marriages; and then a group of 15 with from 100 to 200 marriages.

In addition to the 32 counties ranked in Table 1, there were 9 with from 50 to 100 marriages in the year, viz.: Amador, Calaveras, El Dorado, Merced, San Benito, Tehama, Tuolumne, Yolo, and Yuba; 10 with from 25 to 50 marriages, viz.: Colusa, Glenn, Inyo, Lake, Lassen, Madera, Modoc, Placer, Plumas, and Sutter; and 6 with less than 25 marriages each, viz.: Alpine, Del Norte, Mariposa, Mono, Sierra, and Trinity.

Marriage-rates.—For the purpose of calculating marriage-rates, the population of California in 1905 has been estimated conservatively

according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905, and for the three principal cities arbitrary estimates have been made because of their exceptionally rapid growth. The estimate for San Francisco in 1905 is 450,000, for Los Angeles, 180,000, and for Oakland, 90,000. As a bulk of the marriage returns for 1905–1906 were not affected by the public calamity in April, 1906, no estimates have been changed on account of temporary readjustments of population caused by the San Francisco fire. For convenience in tabulation, the fifty-seven counties of California have been grouped in three main and eight minor geographic divisions, which appear in Table 2, the counties in each group being arranged alphabetically for the sake of ready reference. Marriage-rates are also shown for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) in contrast with the rural counties of Northern and Central California.

TABLE 2.—*Estimated Population (1905), Marriages, and Marriage-rate per 1,000 Population, for Counties arranged Geographically: 1905–1906.*

County.	Estimated Population: 1905.	Marriages: 1905–1906.	Marriage-rate per 1,000 Population.
THE STATE	1,784,521	17,932	*10.0
Northern California	269,510	1,693	6.3
Coast counties	121,785	806	6.6
Del Norte	2,408	15	6.2
Humboldt	28,922	170	5.9
Lake	6,017	32	5.3
Mendocino	21,892	181	8.3
Napa	16,471	159	9.7
Sonoma	41,360	237	5.7
Trinity	4,715	12	2.5
Interior counties	147,725	887	6.0
Butte	17,117	103	6.0
Colusa	7,364	38	5.2
Glenn	5,150	35	6.8
Lassen	4,647	30	6.5
Modoc	5,121	44	8.6
Nevada	17,999	118	6.6
Placer	16,129	41	2.5
Plumas	4,657	30	6.4
Shasta	19,911	132	6.6
Sierra	4,017	16	4.0
Siskiyou	19,362	111	5.7
Sutter	6,095	35	5.7
Tehama	11,536	81	7.0
Yuba	8,620	73	8.5
Central California	1,105,090	12,015	10.9
San Francisco	450,000	4,230	9.4
Other bay counties	216,127	3,230	14.9
Alameda	165,700	2,221	13.4
Contra Costa	20,312	155	7.6
Marin	17,017	619	36.4
San Mateo	13,098	235	17.9
Coast counties	132,371	1,544	11.7
Monterey	19,752	153	7.7
San Benito	6,744	66	9.8
San Luis Obispo	16,920	179	10.6
Santa Clara	66,322	921	13.9
Santa Cruz	22,633	225	9.9

TABLE 2.—*Estimated Population (1905), Marriages, and Marriage-rate per 1,000 Population for Counties arranged Geographically: 1905–1906—Continued.*

County.	Estimated Population: 1905.	Marriages: 1905–1906.	Marriage-rate per 1,000 Population.
Central California—Continued.			
Interior counties	306,592	3,011	9.8
Alpine	509	1	2.0
Amador	11,514	56	4.9
Calaveras	12,359	51	4.1
El Dorado	8,986	56	6.2
Fresno	43,079	491	11.4
Inyo	4,794	30	6.3
Kern	19,816	140	7.1
Kings	12,044	112	9.3
Madera	7,247	40	5.5
Mariposa	5,187	11	2.1
Merced	9,780	75	7.7
Mono	2,250	5	2.2
Sacramento	48,703	826	17.0
San Joaquin	38,864	456	11.7
Solano	25,742	158	6.1
Stanislaus	9,550	104	10.9
Tulare	18,375	205	11.2
Tuolumne	13,708	99	7.2
Yolo	14,085	95	6.7
Southern California	409,921	4,224	*10.3
Los Angeles	259,000	2,241	*8.7
Other counties	150,921	1,983	13.1
Orange	22,750	421	18.5
Riverside	20,140	266	13.2
San Bernardino	31,441	453	14.4
San Diego	39,551	480	12.1
Santa Barbara	20,524	226	11.0
Ventura	16,515	137	8.3
Northern and Central California	1,374,600	13,708	10.0
Coast counties	920,283	9,810	10.7
Interior counties	454,317	3,898	8.6
Metropolitan area	666,127	7,460	11.2
Rural counties	708,473	6,248	8.8

*The 2,241 marriages for Los Angeles County include only 191 for 1905, against 2,050 for 1906, so that the registration is short by 1,800 or more. Corrected for this omission, the rate would be 11.1 for the State, 14.7 for Southern California, and 15.6 for Los Angeles.

It appears from Table 2 that for an estimated State population of 1,784,521 in 1905, the 17,932 marriages registered in 1905–1906 give a marriage-rate of 10.0 per 1,000 population, though complete returns for Los Angeles county would make the State rate 11.1 instead. The marriage-rate is higher for Southern California than for Northern and Central California together. In Northern as well as Central California the rate is higher for the coast counties than for the interior counties. The rate is also considerably higher for the metropolitan area, comprising San Francisco and the other bay counties, than for the rural counties north of Tehachapi.

Among the individual counties, Marin shows the highest marriage-rate, 36.4 per 1,000 population, followed by Orange 18.5, San Mateo 17.9, and Sacramento 17.0. The corrected rate for Los Angeles county, 15.6, would place it next in rank, followed by San Bernardino 14.4, Santa Clara 13.9, Alameda 13.4, Riverside, 13.2, San Diego 12.1, San Joaquin 11.7, Fresno, 11.4, Tulare 11.2, Santa Barbara 11.0, Stanislaus, 10.9,

and San Luis Obispo 10.6, these being the counties with marriage-rates above the State average.

The fact that the marriage-rate is higher f r the metropolitan area than for the rural counties of Northern and entral California and that the corrected rate for Los Angeles is above t' at for the rest of Southern California, indicates that marriages usually take place at urban centers. Moreover, the counties named as having marriage-rates above the State average will be readily recognized as counties having large cities. As a rule, too, in each geographic division the counties with rates above the average for the group are counties with important cities or towns. It seems, therefore, that there is a decided tendency for those about to marry to slip away from their homes in rural counties to be married at an important city in some other county.

At the same time there is a counter movement by which couples residing in great cities like San Francisco and Los Angeles go to a suburban county when they wish to be married. This counter movement is shown by the fact that at San Francisco bay the marriage-rates are much higher for Marin, San Mateo, and Alameda counties than for the metropolis itself, and in Southern California the marriage-rate for Orange county is considerably higher even than the corrected rate for Los Angeles.

Number in Order.—Table 3, below, gives the number in order of marriages, with per cents, for the three main and eight minor geographic divisions, including certain other groups of counties.

TABLE 3.—*Marriages classified by Number in Order, with Per Cent Distribution, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total Marriages.	Number of Marriage.				Per Cent of Marriages.			
		1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both.	1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both.
THE STATE	17,932	13,182	1,958	1,450	1,342	73.5	10.9	8.1	7.5
Northern California	1,693	1,278	194	110	111	75.5	11.5	6.5	6.5
Coast counties	806	619	89	49	49	76.8	11.0	6.1	6.1
Interior counties	887	659	105	61	62	74.3	11.8	6.9	7.0
Central California	12,015	8,900	1,331	933	851	74.1	11.1	7.7	7.1
San Francisco	4,230	3,217	456	312	245	76.0	10.8	7.4	5.8
Other bay counties	3,230	2,241	415	282	292	69.4	12.9	8.7	9.0
Coast counties	1,544	1,147	145	141	111	74.3	9.4	9.1	7.2
Interior counties	3,011	2,295	315	198	203	76.2	10.5	6.6	6.7
Southern California	4,224	3,004	433	407	380	71.1	10.3	9.6	9.0
Los Angeles	2,241	1,630	216	205	190	72.7	9.6	9.2	8.5
Other counties	1,983	1,374	217	202	190	69.3	10.9	10.2	9.6
Northern and Central California	13,708	10,178	1,525	1,043	962	74.3	11.1	7.6	7.0
Coast counties	9,810	7,224	1,105	784	697	73.6	11.3	8.0	7.1
Interior counties	3,898	2,954	420	259	265	75.8	10.8	6.6	6.8
Metropolitan area	7,460	5,458	871	594	537	73.1	11.7	8.0	7.2
Rural counties	6,248	4,720	654	449	425	75.5	10.5	7.2	6.8

Of the 17,932 marriages registered in 1905–1906, 13,182 or 73.5 per cent were first marriages for both parties, neither groom nor bride *having ever been* married before. The per cent of marriages with both *parties single is highest* for the coast counties of Northern California, *76.8, the interior* counties of Central California, 76.2, and for San Fran-

cisco, 76.0. It is lowest, 69.3, for Southern California outside Los Angeles, and next lowest, 69.4, for the bay counties other than San Francisco. The per cent of marriages where neither party was married before is higher for Northern and Central California than for Southern California and north of Tehachapi is higher for the rural counties than for the metropolitan area.

In 1,958 cases, or 10.9 per cent of all, the marriage was the first of the groom only, and in 1,450 cases, or 8.1 per cent, it was the first of the bride only. As a rule, the number of single men marrying widowed or divorced women is greater than the number of single women marrying widowed or divorced men. No geographical division shows a variation from this rule, and exceptions to the rule appear for only nine counties, Plumas, Siskiyou, Monterey, San Benito, San Luis Obispo, Santa Cruz, Kings, Riverside, and Santa Barbara.

In no more than 1,342 instances, or 7.5 per cent of the total number, was the marriage the second or over of both the groom and the bride, each party having been married once or more before. The per cent of marriages where both parties had been previously married is highest, 9.6, for the six counties of Southern California other than Los Angeles, followed by 9.0 for the bay counties other than San Francisco and by 8.5 for Los Angeles. The per cent of marriages where neither party was single is lowest of all, 5.8, for San Francisco, next, 6.1, for the coast counties of Northern California, and next, 6.7, for the interior counties of Central California. The per cent of such marriages is somewhat higher for the metropolitan area than for the rural counties of Northern and Central California, being 7.2 for the former, against 6.8 for the latter.

Status of Parties.—Table 4 shows for each geographic division the civil status or marital condition of both grooms and brides—whether single, widowed, or divorced—at the time of marriage.

TABLE 4.—*Grooms and Brides classified by Marital Condition, with Per Cent Distributions, for Geographic Divisions: 1905-1906.*

Geographic Division.	Totals.	Grooms.			Brides.		
		Single.	Widow'd	Divorced.	Single.	Widow'd.	Divorced.
NUMBERS.							
THE STATE	17,932	15,140	1,655	1,137	14,632	1,891	1,409
Northern California	1,693	1,472	156	65	1,388	203	102
Coast counties	806	708	71	27	668	96	42
Interior counties	887	764	85	38	720	107	60
Central California	12,015	10,231	1,001	783	9,833	1,194	988
San Francisco	4,230	3,673	311	246	3,529	388	313
Other bay counties	3,230	2,656	304	270	2,523	366	341
Coast counties	1,544	1,292	144	108	1,288	138	118
Interior counties	3,011	2,610	242	159	2,493	302	216
Southern California	4,224	3,437	498	289	3,411	494	31
Los Angeles	2,241	1,846	240	155	1,835	246	160
Other counties	1,983	1,591	258	134	1,576	248	159
Northern and Central California	13,708	11,703	1,157	848	11,221	1,397	1,090
Coast counties	9,810	8,329	830	651	8,008	988	814
Interior counties	3,898	3,374	327	197	3,213	409	276
Metropolitan area	7,460	6,329	615	516	6,052	754	654
Rural counties	6,248	5,374	542	332	5,169	643	436

TABLE 4.—*Grooms and Brides classified by Marital Condition, with Per Cent Distributions, for Geographic Divisions: 1905-1906—Continued.*

Geographic Division.	Totals.	Grooms.			Brides.		
		Single.	Widow'd	Divorced.	Single.	Widow'd	Divorced.
PER CENTS.							
THE STATE	100.0	84.4	9.2	6.4	81.6	10.5	7.9
Northern California	100.0	87.0	9.2	3.8	82.0	12.0	6.0
Coast counties	100.0	87.8	8.8	3.4	82.9	11.9	5.2
Interior counties	100.0	86.1	9.6	4.3	81.2	12.0	6.8
Central California	100.0	85.4	8.3	6.5	81.8	10.0	8.2
San Francisco	100.0	86.8	7.4	5.8	83.4	9.2	7.4
Other bay counties	100.0	82.2	9.4	8.4	78.1	11.3	10.6
Coast counties	100.0	83.7	9.3	7.0	83.4	8.9	7.7
Interior counties	100.0	86.7	8.0	5.3	82.8	10.0	7.2
Southern California	100.0	81.4	11.8	6.8	80.7	11.7	7.6
Los Angeles	100.0	82.4	10.7	6.9	81.9	11.0	7.1
Other counties	100.0	80.2	13.0	6.8	79.5	12.5	8.0
Northern and Central California	100.0	85.4	8.4	6.2	81.9	10.2	7.9
Coast counties	100.0	84.9	8.5	6.6	81.6	10.1	8.3
Interior counties	100.0	86.6	8.4	5.0	82.4	10.5	7.1
Metropolitan area	100.0	84.8	8.3	6.9	81.1	10.1	8.8
Rural counties	100.0	86.0	8.7	5.3	82.7	10.3	7.0

It appears from Table 4 that 15,140 or 84.4 per cent of the grooms were single, 1,655 or 9.2 per cent were widowed, and 1,137 or 6.4 per cent were divorced. Among the brides the single numbered 14,632 or 81.6 per cent, the widowed 1,891 or 10.5 per cent, and the divorced 1,409 or 7.9 per cent. The widows outnumber the widowers by 236 or 14.3 per cent, and the number of divorced women exceeds that of divorced men by 272 or 23.9 per cent.

The per cent of widowers is particularly high (11.8) in Southern California, being 10.7 for Los Angeles and 13.0 for the other six counties. The per cent of widows is also highest (12.5) for the six counties of Southern California other than Los Angeles, and is next highest, 12.0 and 11.9 respectively, for the interior and coast counties of Northern California.

The per cent divorced, both among grooms and brides, is highest for the bay counties other than San Francisco, and next for Southern California, especially outside Los Angeles. While the per cent of divorced grooms is only 6.4 for the State, it is 8.4 for the four counties adjoining San Francisco, 6.9 for Los Angeles and 6.8 for the other six counties of Southern California, being 8.3 for Orange county. Similarly, as compared with 7.9 for the State, the per cent of divorced brides is 10.6 for the four counties suburban to San Francisco, and 8.0 for the six counties of Southern California other than Los Angeles, being 10.0 for Orange against 7.1 for Los Angeles. Though the per cent of divorced brides is only 7.4 for San Francisco, it is 8.9 for Alameda, 9.0 for Contra Costa, 14.1 for San Mateo, and 15.5 for Marin. But as heretofore *explained, residents* of the metropolis often prefer to be married in the *suburbs and this* seems to be especially the case among divorced persons.

VITAL STATISTICS FOR AUGUST.

Summary.—For August there were reported 1,796 living births; 2,106 deaths, exclusive of stillbirths; and 1,709 marriages. For an estimated State population of 1,882,483 in 1906 the returns for August give the following annual rates: Births, 11.4; deaths, 13.4; and marriages, 10.9, per 1,000 population.

Tuberculosis, as usual, was the leading cause of death and typhoid fever was the most fatal epidemic disease.

Causes of Death.—The following table gives the number of deaths due to certain principal causes in August, as well as the proportion from each cause per 1,000 total deaths for both August and July:

Cause of Death.	Deaths: August.	Proportion per 1,000.	
		August.	July.
ALL CAUSES	2,106	1,000.0	1,000.0
Typhoid fever	72	34.2	18.8
Malarial fever	10	4.7	7.3
Smallpox	----	----	0.5
Measles	3	1.4	2.7
Scarlet fever	----	----	0.9
Whooping-cough	11	5.2	2.7
Diphtheria and croup	8	3.8	5.5
Influenza	1	0.5	0.9
Other epidemic diseases	11	5.2	8.3
Tuberculosis of lungs	279	132.5	129.8
Tuberculosis of other organs	32	15.2	24.3
Cancer	114	54.1	50.9
Other general diseases	74	35.1	28.4
Meningitis	21	10.0	24.3
Other diseases of nervous system	173	82.2	88.1
Diseases of circulatory system	283	134.4	121.1
Pneumonia and broncho-pneumonia	104	49.4	34.4
Other diseases of respiratory system	34	16.1	17.0
Diarrhea and enteritis, under 2 years	100	47.5	64.2
Diarrhea and enteritis, 2 years and over	40	19.0	16.5
Other diseases of digestive system	112	53.2	55.1
Bright's disease and nephritis	110	52.2	56.4
Childbirth	21	10.0	10.1
Early infancy	76	36.1	49.1
Suicide	47	22.3	23.4
Other violence	215	102.1	85.0
All other causes	155	73.6	74.3

Tuberculosis, as usual, was the leading cause of death in August, though diseases of the circulatory system (heart disease, etc.) were a close second, the proportion of total deaths for the former being 147.7 against 134.4 for the latter.

Typhoid fever is still the most fatal epidemic disease in the State, the proportion of all deaths due to this disease being much greater for August than for July, though the proportions declined for all other epidemic diseases except whooping-cough.

CALIFORNIA PUBLIC HEALTH ASSOCIATION

SEVENTH SESSION

ALUM ROCK SPRINGS, SAN JOSE, OCTOBER 12, 1906

The California Public Health Association will hold its fall meeting at Alum Rock Springs, San José, Friday, October 12, at 10 A. M.

The San José Chamber of Commerce has kindly interested itself in the entertainment of the Association and the following program has been arranged.

Special car, furnished by the Alum Rock Railway Company, will leave the corner of First and Santa Clara streets, San José, at 10 A. M. sharp. Free transportation to and from the park.

All in attendance are invited to join in a barbecue furnished by the San José Chamber of Commerce at noon.

The Park Commission furnishes the freedom of the Park.

PROGRAM

Address of Welcome, by HON. H. D. MATHEWS, Mayor of San José.
Address by J. D. RADFORD, President of First National Bank, giving history of the Park, its purposes and future plans.
"Formation of Mineral Springs," by PROF. HARRY S. JOHNSON, Stanford University
"Use and Abuse of Mineral Springs," by DR. ROBERT CREES, Paso Robles.
"Mineral Springs of California," by PHILIP MILLS JONES, Editor of California State Journal of Medicine.
Discussion of Papers.
Questions and Answers.

MINERAL SPRINGS.

The subject of mineral springs is one of the utmost importance to California. No State or country is more richly endowed with them than is California, and there are probably none of the famous springs of Europe but what can be duplicated here, and in their variety we far excel them. The trouble with our springs is that they are not studied and classified so that a person can exercise intelligence in his selection. As a result, more often than otherwise patients go to the one that is not indicated in their particular case, and fail to receive benefit, or may even be injured by their sojourn. Many of the springs have no attending physician, or, if so, he is generally one who has given no exhaustive study to the subject. These springs should be a source of great income to the people of the State and, better, a great relief to the suffering of mankind; but this can be only when they have been carefully studied and intelligently used. There is little doubt but at present they do as much harm as good, simply from the want of proper supervision.

Every one interested in mineral springs who can intelligently discuss and throw light on the subject is urged to be present at the session of the California Public Health Association, to be held at Alum Rock Springs, San José, October 12, 1906, and help in a systematic development of this great health-giving feature of our State.

HEALTH OFFICERS.

Every health officer in the State, and all others interested in sanitation, are urged to be present in San José on October 12 and attend the session of the California Public Health Association. If there is no other benefit to be derived from these meetings than that of getting acquainted with each other and enjoying a social hour, the cost would be a good investment. Strong, earnest men and women, absorbed and interested in their work, can not associate without both receiving and giving good. The papers and discussions, the questions and answers, make these conferences of great value to every one who attends them.

"SEWAGE DISPOSAL.

"The very existence of a question of sewage disposal depends on the inherent selfishness of man. If every one, both individuals and communities, followed the golden rule and decisively and consistently refused to do anything which could interfere with his neighbors' happiness or health, there would be no sewage disposal question. Human nature, however, is essentially selfish, and as long as it is cheaper and easier for a farmer to build a privy over a stream than to dig a cesspool, or for a city to empty its outfall sewer directly into a river than to first purify the sewage, just so long will these methods continue to be employed regardless of the consequences, unless some higher power intervenes.

"The above-mentioned practice is certainly revolting enough to deserve condemnation, and it is a startling evidence of man's selfishness that such things are done. But a municipal conscience is very small and feeble, and the plea of 'didn't think' has no more effect than 'don't care,' after an epidemic has been started.

"Of all the data which modern science has established, the fact that certain diseases are directly caused by impure drinking water is of the greatest importance and benefit. It is now a matter of common knowledge that vaccination prevents smallpox; that anti-toxin removes the dread of lockjaw and makes diphtheria curable; that consumption, not too far advanced, can be arrested; but that cancer and meningitis are still mysterious diseases. Typhoid fever and diarrheal disturbances are known to be among the list of water-borne diseases (that is, communicated by drinking water), and it is no exaggeration to say that if all drinking water were pure, typhoid fever would be stamped out. The very thought of drinking sewage is nauseating. No one, knowingly, would drink from a brook which drained a barnyard or a privy. The sight of a stream of drinking water winding in and out among piles of manure, no matter how clear and pure the water might appear, would turn any stomach, and only extreme thirst could make such water palatable. And yet typhoid fever is introduced into water in just such a way. Somewhere, somehow, some man, woman, or child has acquired typhoid fever. The bowel discharges of the patient are thrown down a privy, into a barnyard, onto the fields, into the sewer, or even directly in contact with food. The sewage is carried or is washed down to a stream, the water from which runs ultimately into a reservoir. Some city drinks the reservoir water and an epidemic ensues. The department of health, among its other duties, is charged with the task of preventing such an *outrage.*

The statistics indicate that there is a decided tendency for persons living in rural counties to be married at the largest city easily accessible. This seems the readiest explanation of the relatively high marriage-rates not only for the metropolitan area in Northern and Southern California and for Los Angeles county in Southern California, but also for the counties containing such cities as Sacramento, San José, Stockton, Fresno, Visalia, Modesto, and San Luis Obispo.

There is also a counter movement by which residents of very large cities, like San Francisco or Los Angeles, prefer to be married in suburban counties. Thus it happens that the marriage-rates are much higher for Marin, San Mateo, and Alameda counties than for the metropolis itself, and that in Southern California the rate is highest for Orange rather than for Los Angeles county. This movement is particularly marked on San Francisco Bay, where San Rafael, in Marin county, is a veritable Gretna Green, especially, as shown later, for divorcees.

In 13,182 of the 17,932 marriages in 1905–1906, or 73.5 per cent of all cases, the marriage was the first for both parties. The per cent of first marriages is highest, 76.8, for the coast counties of Northern California, followed by 76.2 for the interior counties of Central California and 76.0 for San Francisco.

While 1,958 single men were married to widowed or divorced women, only 1,450 single women were married to widowed or divorced men. In fact, only nine of the fifty-seven counties show exceptions to the rule that there are more unions of bachelors with widows than of maids with widowers.

In 1,342 instances, or 7.5 per cent of all, the marriage was the second or over of both parties. The per cent of marriages where both parties had been married before is particularly high for Southern California, especially outside Los Angeles, and for the bay counties other than San Francisco. Though among the eight minor geographic divisions, San Francisco has the lowest per cent of such marriages, yet the per cent is somewhat higher for the metropolitan area than for the rural counties of Northern and Central California.

Altogether 15,140 or 84.4 per cent of the grooms were single, 1,655 widowed, and 1,137 divorced; while of the brides 14,632 or 81.6 per cent were single, 1,891 widowed, and 1,409 divorced. The widows outnumber the widowers by 236 or 14.3 per cent, and among the divorced the women exceed the men by 272 or 23.9 per cent.

The per cent of widowers is particularly high only in Southern California, especially outside Los Angeles, but the per cent of widows is relatively high, not only in Southern California, but also in both the coast and interior counties of Northern California.

The per cent divorced, both among grooms and brides, is highest for the bay counties other than San Francisco, and next for Southern California, especially outside Los Angeles, being highest south of Tehachapi in Orange county.

Though the per cent of divorced brides is 7.9 for all California and only 7.4 for San Francisco, it is 8.9 for Alameda, 9.0 for Contra Costa, 14.1 for San Mateo, and 15.5 for Marin. It appears, therefore, that the tendency for residents of the metropolis to be married in suburban *counties is particularly* strong among divorcees.

County Totals.—Under the law of 1905 requiring County Recorders as local registrars to transmit to the State Registrar the original marriage certificates filed with them each month, 17,932 marriages were registered in the California State Bureau of Vital Statistics for 1905–1906. The total for the last half of 1905 was 8,338, against 9,594 for the first half of 1906.

Table 1, below, shows the counties for which at least 100 marriages were reported to the State Bureau of Vital Statistics in 1905–1906:

TABLE 1.—*Rank of Counties with at Least 100 Marriages: 1905–1906.*

Rank. County.	Marriages: 1905–1906.	Rank. County.	Marriages: 1905–1906.
THE STATE	17,932	17. Tulare	205
1. San Francisco	4,230	18. Mendocino	181
2. Los Angeles	*2,241	19. San Luis Obispo	179
3. Alameda	2,221	20. Humboldt	170
4. Santa Clara	921	21. Napa	159
5. Sacramento	826	22. Solano	158
6. Marin	619	23. Contra Costa	155
7. Fresno	491	24. Monterey	153
8. San Diego	480	25. Kern	140
9. San Joaquin	456	26. Ventura	137
10. San Bernardino	453	27. Shasta	132
11. Orange	421	28. Nevada	118
12. Riverside	266	29. Kings	112
13. Sonoma	237	30. Siskiyou	111
14. San Mateo	235	31. Stanislaus	104
15. Santa Barbara	226	32. Butte	103
16. Santa Cruz	225	Remaining 25 counties	1,067

*Returns incomplete.

Despite the destruction of certificates for more than one half of April, 1906, and incomplete registration in the confusion following the great fire, San Francisco with 4,230 marriages properly registered contributes 23.6 per cent of the State total. The returns for Los Angeles cover little over half a year, the first certificates received having been for December, 1905. Complete returns for the whole twelve months would have made the total for Los Angeles county nearer that for San Francisco. In Alameda county, as well as San Francisco and Los Angeles, over 2,000 marriages were registered in 1905–1906.

With regard to the number of marriages registered, the counties fall into several groups. First, there is a group of 3 counties, each with over 2,000 marriages in the year; next comes another group of 3 counties, each with between 600 and 1,000 marriages in the year; then a group of 5, each with from 400 to 500 marriages; then a group of 6, with from 200 to 300 marriages; and then a group of 15 with from 100 to 200 marriages.

In addition to the 32 counties ranked in Table 1, there were 9 with from 50 to 100 marriages in the year, viz.: Amador, Calaveras, El Dorado, Merced, San Benito, Tehama, Tuolumne, Yolo, and Yuba; 10 with from 25 to 50 marriages, viz.: Colusa, Glenn, Inyo, Lake, Lassen, Madera, Modoc, Placer, Plumas, and Sutter; and 6 with less than 25 marriages each, viz.: Alpine, Del Norte, Mariposa, Mono, Sierra, and Trinity.

Marriage-rates.—For the purpose of calculating marriage-rates, the population of California in 1905 has been estimated conservatively

according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905, and for the three principal cities arbitrary estimates have been made because of their exceptionally rapid growth. The estimate for San Francisco in 1905 is 450,000, for Los Angeles, 180,000, and for Oakland, 90,000. As a bulk of the marriage returns for 1905–1906 were not affected by the public calamity in April, 1906, no estimates have been changed on account of temporary readjustments of population caused by the San Francisco fire. For convenience in tabulation, the fifty-seven counties of California have been grouped in three main and eight minor geographic divisions, which appear in Table 2, the counties in each group being arranged alphabetically for the sake of ready reference. Marriage-rates are also shown for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) in contrast with the rural counties of Northern and Central California.

TABLE 2.—*Estimated Population (1905), Marriages, and Marriage-rate per 1,000 Population, for Counties arranged Geographically: 1905–1906.*

County.	Estimated Population: 1905.	Marriages: 1905–1906.	Marriage-rate per 1,000 Population.
THE STATE	1,784,521	17,932	*10.0
Northern California	269,510	1,693	6.3
Coast counties	121,785	806	6.6
Del Norte	2,408	15	6.2
Humboldt	28,922	170	5.9
Lake	6,017	32	5.3
Mendocino	21,892	181	8.3
Napa	16,471	159	9.7
Sonoma	41,360	237	5.7
Trinity	4,715	12	2.5
Interior counties	147,725	887	6.0
Butte	17,117	103	6.0
Colusa	7,364	38	5.2
Glenn	5,150	35	6.8
Lassen	4,647	30	6.5
Modoc	5,121	44	8.6
Nevada	17,999	118	6.6
Placer	16,129	41	2.5
Plumas	4,657	30	6.4
Shasta	19,911	132	6.6
Sierra	4,017	16	4.0
Siskiyou	19,362	111	5.7
Sutter	6,095	35	5.7
Tehama	11,536	81	7.0
Yuba	8,620	73	8.5
Central California	1,105,090	12,015	10.9
San Francisco	450,000	4,230	9.4
Other bay counties	216,127	3,230	14.9
Alameda	165,700	2,221	13.4
Contra Costa	20,312	155	7.6
Marin	17,017	619	36.4
San Mateo	13,098	235	17.9
Coast counties	132,371	1,544	11.7
Monterey	19,752	153	7.7
San Benito	6,744	66	9.8
San Luis Obispo	18,920	179	10.6
Santa Clara	66,322	921	13.9
Santa Cruz	22,633	225	9.9

TABLE 2.—*Estimated Population (1905), Marriages, and Marriage-rate per 1,000 Population for Counties arranged Geographically: 1905–1906—Continued.*

County.	Estimated Population: 1905.	Marriages: 1905–1906.	Marriage-rate per 1,000 Population.
Central California—Continued.			
Interior counties	306,592	3,011	9.8
Alpine	509	1	2.0
Amador	11,514	56	4.9
Calaveras	12,359	51	4.1
El Dorado	8,986	56	6.2
Fresno	43,079	491	11.4
Inyo	4,794	30	6.3
Kern	19,816	140	7.1
Kings	12,044	112	9.3
Madera	7,247	40	5.5
Mariposa	5,187	11	2.1
Merced	9,780	75	7.7
Mono	2,250	5	2.2
Sacramento	48,703	826	17.0
San Joaquin	38,864	456	11.7
Solano	25,742	158	6.1
Stanislaus	9,550	104	10.9
Tulare	18,375	205	11.2
Tuolumne	13,708	99	7.2
Yolo	14,085	95	6.7
Southern California	409,921	4,224	*10.3
Los Angeles	259,000	2,241	*8.7
Other counties	150,921	1,983	13.1
Orange	22,750	421	18.5
Riverside	20,140	266	13.2
San Bernardino	31,441	453	14.4
San Diego	39,551	480	12.1
Santa Barbara	20,524	226	11.0
Ventura	16,515	137	8.3
Northern and Central California	1,374,600	13,708	10.0
Coast counties	920,283	9,810	10.7
Interior counties	454,317	3,898	8.6
Metropolitan area	666,127	7,460	11.2
Rural counties	708,473	6,248	8.8

*The 2,241 marriages for Los Angeles County include only 191 for 1905, against 2,050 for 1906, so that the registration is short by 1,800 or more. Corrected for this omission, the rate would be 11.1 for the State, 14.7 for Southern California, and 15.6 for Los Angeles.

It appears from Table 2 that for an estimated State population of 1,784,521 in 1905, the 17,932 marriages registered in 1905–1906 give a marriage-rate of 10.0 per 1,000 population, though complete returns for Los Angeles county would make the State rate 11.1 instead. The marriage-rate is higher for Southern California than for Northern and Central California together. In Northern as well as Central California the rate is higher for the coast counties than for the interior counties. The rate is also considerably higher for the metropolitan area, comprising San Francisco and the other bay counties, than for the rural counties north of Tehachapi.

Among the individual counties, Marin shows the highest marriage-rate, 36.4 per 1,000 population, followed by Orange 18.5, San Mateo 17.9, and Sacramento 17.0. The corrected rate for Los Angeles county, 15.6, would place it next in rank, followed by San Bernardino 14.4, Santa Clara 13.9, Alameda 13.4, Riverside, 13.2, San Diego 12.1, San Joaquin 11.7, Fresno, 11.4, Tulare 11.2, Santa Barbara 11.0, Stanislaus, 10.9,

and San Luis Obispo 10.6, these being the counties with marriage-rates above the State average.

The fact that the marriage-rate is higher f r the metropolitan area than for the rural counties of Northern and entral California and that the corrected rate for Los Angeles is above t' at for the rest of Southern California, indicates that marriages usually take place at urban centers. Moreover, the counties named as having marriage-rates above the State average will be readily recognized as counties having large cities. As a rule, too, in each geographic division the counties with rates above the average for the group are counties with important cities or towns. It seems, therefore, that there is a decided tendency for those about to marry to slip away from their homes in rural counties to be married at an important city in some other county.

At the same time there is a counter movement by which couples residing in great cities like San Francisco and Los Angeles go to a suburban county when they wish to be married. This counter movement is shown by the fact that at San Francisco bay the marriage-rates are much higher for Marin, San Mateo, and Alameda counties than for the metropolis itself, and in Southern California the marriage-rate for Orange county is considerably higher even than the corrected rate for Los Angeles.

Number in Order.—Table 3, below, gives the number in order of marriages, with per cents, for the three main and eight minor geographic divisions, including certain other groups of counties.

TABLE 3.—*Marriages classified by Number in Order, with Per Cent Distribution, for Geographic Divisions: 1905-1906.*

Geographic Division.	Total Marriages.	Number of Marriage.				Per Cent of Marriages.			
		1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both.	1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both.
THE STATE	17,932	13,182	1,958	1,450	1,342	73.5	10.9	8.1	7.5
Northern California	1,693	1,278	194	110	111	75.5	11.5	6.5	6.5
Coast counties	806	619	89	49	49	76.8	11.0	6.1	6.1
Interior counties	887	659	105	61	62	74.3	11.8	6.9	7.0
Central California	12,015	8,900	1,331	933	851	74.1	11.1	7.7	7.1
San Francisco	4,230	3,217	456	312	245	76.0	10.8	7.4	5.8
Other bay counties	3,230	2,241	415	282	292	69.4	12.9	8.7	9.0
Coast counties	1,544	1,147	145	141	111	74.3	9.4	9.1	7.2
Interior counties	3,011	2,295	315	198	203	76.2	10.5	6.6	6.7
Southern California	4,224	3,004	433	407	380	71.1	10.3	9.6	9.0
Los Angeles	2,241	1,630	216	205	190	72.7	9.6	9.2	8.5
Other counties	1,983	1,374	217	202	190	69.3	10.9	10.2	9.6
Northern and Central California	13,708	10,178	1,525	1,043	962	74.3	11.1	7.6	7.0
Coast counties	9,810	7,224	1,105	784	697	73.6	11.3	8.0	7.1
Interior counties	3,898	2,954	420	259	265	75.8	10.8	6.6	6.8
Metropolitan area	7,460	5,458	871	594	537	73.1	11.7	8.0	7.2
Rural counties	6,248	4,720	654	449	425	75.5	10.5	7.2	6.8

Of the 17,932 marriages registered in 1905-1906, 13,182 or 73.5 per cent were first marriages for both parties, neither groom nor bride *having ever been* married before. The per cent of marriages with both *parties single is highest* for the coast counties of Northern California, *76.8, the interior* counties of Central California, 76.2, and for San Fran-

cisco, 76.0. It is lowest, 69.3, for Southern California outside Los Angeles, and next lowest, 69.4, for the bay counties other than San Francisco. The per cent of marriages where neither party was married before is higher for Northern and Central California than for Southern California and north of Tehachapi is higher for the rural counties than for the metropolitan area.

In 1,958 cases, or 10.9 per cent of all, the marriage was the first of the groom only, and in 1,450 cases, or 8.1 per cent, it was the first of the bride only. As a rule, the number of single men marrying widowed or divorced women is greater than the number of single women marrying widowed or divorced men. No geographical division shows a variation from this rule, and exceptions to the rule appear for only nine counties, Plumas, Siskiyou, Monterey, San Benito, San Luis Obispo, Santa Cruz, Kings, Riverside, and Santa Barbara.

In no more than 1,342 instances, or 7.5 per cent of the total number, was the marriage the second or over of both the groom and the bride, each party having been married once or more before. The per cent of marriages where both parties had been previously married is highest, 9.6, for the six counties of Southern California other than Los Angeles, followed by 9.0 for the bay counties other than San Francisco and by 8.5 for Los Angeles. The per cent of marriages where neither party was single is lowest of all, 5.8, for San Francisco, next, 6.1, for the coast counties of Northern California, and next, 6.7, for the interior counties of Central California. The per cent of such marriages is somewhat higher for the metropolitan area than for the rural counties of Northern and Central California, being 7.2 for the former, against 6.8 for the latter.

Status of Parties.—Table 4 shows for each geographic division the civil status or marital condition of both grooms and brides—whether single, widowed, or divorced—at the time of marriage.

TABLE 4.—*Grooms and Brides classified by Marital Condition, with Per Cent Distributions, for Geographic Divisions: 1905-1906.*

Geographic Division.	Totals.	Grooms.			Brides.		
		Single.	Widow'd	Divorced.	Single.	Widow'd.	Divorced.
NUMBERS.							
THE STATE	17,932	15,140	1,655	1,137	14,632	1,891	1,409
Northern California	1,693	1,472	156	65	1,388	203	102
Coast counties	806	708	71	27	668	96	42
Interior counties	887	764	85	38	720	107	60
Central California	12,015	10,231	1,001	783	9,833	1,194	988
San Francisco	4,230	3,673	311	246	3,529	388	313
Other bay counties	3,230	2,656	304	270	2,523	366	341
Coast counties	1,544	1,292	144	108	1,288	138	118
Interior counties	3,011	2,610	242	159	2,493	302	216
Southern California	4,224	3,437	498	289	3,411	494	31
Los Angeles	2,241	1,846	240	155	1,835	246	160
Other counties	1,983	1,591	258	134	1,576	248	159
Northern and Central California	13,708	11,703	1,157	848	11,221	1,397	1,090
Coast counties	9,810	8,329	830	651	8,008	988	814
Interior counties	3,898	3,374	327	197	3,213	409	276
Metropolitan area	7,460	6,329	615	516	6,052	754	654
Rural counties	6,248	5,374	542	332	5,169	643	436

TABLE 4.—*Grooms and Brides classified by Marital Condition, with Per Cent Distributions, for Geographic Divisions: 1905-1906—Continued.*

Geographic Division.	Totals.	Grooms.			Brides.		
		Single.	Widow'd	Divorced.	Single.	Widow'd	Divorced.
PER CENTS.							
THE STATE	100.0	84.4	9.2	6.4	81.6	10.5	7.9
Northern California	100.0	87.0	9.2	3.8	82.0	12.0	6.0
Coast counties	100.0	87.8	8.8	3.4	82.9	11.9	5.2
Interior counties	100.0	86.1	9.6	4.3	81.2	12.0	6.8
Central California	100.0	85.4	8.3	6.5	81.8	10.0	8.2
San Francisco	100.0	86.8	7.4	5.8	83.4	9.2	7.4
Other bay counties	100.0	82.2	9.4	8.4	78.1	11.3	10.6
Coast counties	100.0	83.7	9.3	7.0	83.4	8.9	7.7
Interior counties	100.0	86.7	8.0	5.3	82.8	10.0	7.2
Southern California	100.0	81.4	11.8	6.8	80.7	11.7	7.6
Los Angeles	100.0	82.4	10.7	6.9	81.9	11.0	7.1
Other counties	100.0	80.2	13.0	6.8	79.5	12.5	8.0
Northern and Central California	100.0	85.4	8.4	6.2	81.9	10.2	7.9
Coast counties	100.0	84.9	8.5	6.6	81.6	10.1	8.3
Interior counties	100.0	86.6	8.4	5.0	82.4	10.5	7.1
Metropolitan area	100.0	84.8	8.3	6.9	81.1	10.1	8.8
Rural counties	100.0	86.0	8.7	5.3	82.7	10.3	7.0

It appears from Table 4 that 15,140 or 84.4 per cent of the grooms were single, 1,655 or 9.2 per cent were widowed, and 1,137 or 6.4 per cent were divorced. Among the brides the single numbered 14,632 or 81.6 per cent, the widowed 1,891 or 10.5 per cent, and the divorced 1,409 or 7.9 per cent. The widows outnumber the widowers by 236 or 14.3 per cent, and the number of divorced women exceeds that of divorced men by 272 or 23.9 per cent.

The per cent of widowers is particularly high (11.8) in Southern California, being 10.7 for Los Angeles and 13.0 for the other six counties. The per cent of widows is also highest (12.5) for the six counties of Southern California other than Los Angeles, and is next highest, 12.0 and 11.9 respectively, for the interior and coast counties of Northern California.

The per cent divorced, both among grooms and brides, is highest for the bay counties other than San Francisco, and next for Southern California, especially outside Los Angeles. While the per cent of divorced grooms is only 6.4 for the State, it is 8.4 for the four counties adjoining San Francisco, 6.9 for Los Angeles and 6.8 for the other six counties of Southern California, being 8.3 for Orange county. Similarly, as compared with 7.9 for the State, the per cent of divorced brides is 10.6 for the four counties suburban to San Francisco, and 8.0 for the six counties of Southern California other than Los Angeles, being 10.0 for Orange against 7.1 for Los Angeles. Though the per cent of divorced brides is only 7.4 for San Francisco, it is 8.9 for Alameda, 9.0 for Contra Costa, 14.1 for San Mateo, and 15.5 for Marin. But as heretofore *explained, residents of the metropolis often prefer to be married in the suburbs and this seems* to be especially the case among divorced persons.

VITAL STATISTICS FOR AUGUST.

Summary.—For August there were reported 1,796 living births; 2,106 deaths, exclusive of stillbirths; and 1,709 marriages. For an estimated State population of 1,882,483 in 1906 the returns for August give the following annual rates: Births, 11.4; deaths, 13.4; and marriages, 10.9, per 1,000 population.

Tuberculosis, as usual, was the leading cause of death and typhoid fever was the most fatal epidemic disease.

Causes of Death.—The following table gives the number of deaths due to certain principal causes in August, as well as the proportion from each cause per 1,000 total deaths for both August and July:

Cause of Death.	Deaths: August.	Proportion per 1,000.	
		August.	July.
ALL CAUSES	2,106	1,000.0	1,000.0
Typhoid fever	72	34.2	18.8
Malarial fever	10	4.7	7.3
Smallpox	----	----	0.5
Measles	3	1.4	2.7
Scarlet fever	----	----	0.9
Whooping-cough	11	5.2	2.7
Diphtheria and croup	8	3.8	5.5
Influenza	1	0.5	0.9
Other epidemic diseases	11	5.2	8.3
Tuberculosis of lungs	279	132.5	129.8
Tuberculosis of other organs	32	15.2	24.3
Cancer	114	54.1	50.9
Other general diseases	74	35.1	28.4
Meningitis	21	10.0	24.3
Other diseases of nervous system	173	82.2	88.1
Diseases of circulatory system	283	134.4	121.1
Pneumonia and broncho-pneumonia	104	49.4	34.4
Other diseases of respiratory system	34	16.1	17.0
Diarrhea and enteritis, under 2 years	100	47.5	64.2
Diarrhea and enteritis, 2 years and over	40	19.0	16.5
Other diseases of digestive system	112	53.2	55.1
Bright's disease and nephritis	110	52.2	56.4
Childbirth	21	10.0	10.1
Early infancy	76	36.1	49.1
Suicide	47	22.3	23.4
Other violence	215	102.1	85.0
All other causes	155	73.6	74.3

Tuberculosis, as usual, was the leading cause of death in August, though diseases of the circulatory system (heart disease, etc.) were a close second, the proportion of total deaths for the former being 147.7 against 134.4 for the latter.

Typhoid fever is still the most fatal epidemic disease in the State, the proportion of all deaths due to this disease being much greater for August than for July, though the proportions declined for all other epidemic diseases except whooping-cough.

Next to tuberculosis come diseases of the circulatory system, heart disease, etc. These diseases caused one eighth (12.6 per cent) of all deaths and have a death-rate of 191.3 per 100,000 population.

Next come diseases of the respiratory system, which caused nearly one ninth (10.8 per cent) of all deaths in the State, pneumonia and broncho-pneumonia causing 8.0 per cent and other diseases of the respiratory system 2.8 per cent of all deaths. The death-rate for all diseases of the respiratory system is 163.6 per 100,000 population.

Following pneumonia and other diseases of the respiratory system come meningitis and other diseases of the nervous system. These diseases caused nearly one tenth (9.8 per cent) of all deaths and have a death-rate of 147.8 per 100,000 population.

The proportions are next highest for diseases of the digestive system (diarrhea and enteritis, etc.), 8.9 per cent; violence other than suicide or earthquake and fire, 7.2 per cent; cancer, 5.3 per cent; Bright's disease and nephritis, 5.2 per cent; and early infancy, 3.2 per cent.

Of the epidemic diseases, typhoid fever was by far the most fatal, causing 425 deaths, or 1.6 per cent of the State total for the year. The number of deaths from other important epidemic diseases in 1905–1906 was as follows: diphtheria and croup, 234; influenza, 217; whooping-cough, 174; measles, 128; malarial fever, 90; scarlet fever, 45; and smallpox, 27. The deaths from smallpox were only 1 in each 1,000 from all causes and represent a death-rate of no more than 1.5 per 100,000 population.

Altogether, 709 deaths, or 2.6 per cent of all for the year 1905–1906, are charged against the earthquake and fire of April, 1906. The number given includes only the deaths known to have resulted from this public calamity, and may perhaps understate the loss of life resulting from this seismic disturbance. However, the total does include several deaths resulting only indirectly from earthquake and fire, as deaths of aged persons from fright or heart disease and deaths of infants from exposure.

The 709 deaths resulting directly or indirectly from earthquake and fire occurred in the following counties: San Francisco, 463; Santa Clara, 141; Sonoma, 72; Alameda, 12; Santa Cruz, 6; San Benito and Sacramento, 3 each; Mendocino, Napa, and Solano, 2 each; and Glenn, Nevada, and Los Angeles, 1 each. The bulk of the deaths in Santa Clara county were at the State Hospital at Agnews, and nearly all in Sonoma county were in Santa Rosa city. Most of the deaths in the other counties named occurred among refugees from San Francisco suffering from fright or exposure.

Table 3 gives for the three main geographic divisions the number of deaths from certain principal causes, and also the proportion from each cause per 1,000 total deaths. The death-rates for each disease per 100,000 population are not shown for geographic divisions, because the registration of deaths was not equally complete throughout the State.

TABLE 3.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Main Geographic Divisions: 1905-1906.*

Cause of Death.	The State.	Division.		
		Northern.	Central.	Southern.
DEATHS: 1905-1906.				
ALL CAUSES	27,026	3,093	16,720	7,213
Typhoid fever	425	55	278	92
Malarial fever	90	39	41	10
Smallpox	27	4	22	1
Measles	128	7	69	52
Scarlet fever	45	5	29	11
Whooping-cough	174	34	87	53
Diphtheria and croup	234	31	132	71
Influenza	217	50	102	65
Other epidemic diseases	193	40	107	46
Tuberculosis of lungs	3,622	309	1,893	1,420
Tuberculosis of other organs	561	56	358	147
Cancer	1,428	136	903	389
Other general diseases	1,020	121	638	261
Meningitis	448	46	284	118
Other diseases of nervous system	2,190	347	1,265	578
Diseases of circulatory system	3,413	344	2,282	787
Pneumonia and broncho-pneumonia	2,153	250	1,405	498
Other diseases of respiratory system	767	92	479	196
Diarrhea and enteritis, under 2 years	700	47	487	166
Diarrhea and enteritis, 2 years and over	278	24	185	69
Other diseases of digestive system	1,427	173	897	357
Bright's disease and nephritis	1,407	115	864	428
Childbirth	262	27	166	69
Early infancy	851	62	553	236
Suicide	474	49	317	108
Earthquake and fire	709	78	630	1
Other violence	1,955	255	1,140	560
All other causes	1,828	297	1,107	424
PROPORTION PER 1,000 TOTAL DEATHS.				
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	15.7	17.8	16.6	12.8
Malarial fever	3.3	12.6	2.5	1.4
Smallpox	1.0	1.3	1.3	0.1
Measles	4.7	2.3	4.1	7.2
Scarlet fever	1.7	1.6	1.7	1.5
Whooping-cough	6.4	11.0	5.2	7.4
Diphtheria and croup	8.7	10.0	7.9	9.8
Influenza	8.0	16.2	6.1	9.0
Other epidemic diseases	7.2	12.9	6.4	6.4
Tuberculosis of lungs	134.0	99.9	113.2	196.9
Tuberculosis of other organs	20.8	18.1	21.4	20.4
Cancer	52.8	44.0	54.0	53.9
Other general diseases	37.7	39.1	38.2	36.2
Meningitis	16.6	14.9	17.0	16.4
Other diseases of nervous system	81.0	112.2	75.7	80.1
Diseases of circulatory system	126.3	111.2	136.5	109.1
Pneumonia and broncho-pneumonia	79.7	80.8	84.0	69.0
Other diseases of respiratory system	28.4	29.8	28.6	27.2
Diarrhea and enteritis, under 2 years	25.9	15.2	29.1	23.0
Diarrhea and enteritis, 2 years and over	10.3	7.8	11.1	9.6
Other diseases of digestive system	52.8	55.9	53.6	49.5
Bright's disease and nephritis	52.1	37.2	51.7	59.3
Childbirth	9.7	8.7	9.9	9.6
Early infancy	31.5	20.1	33.1	32.7
Suicide	17.5	15.8	19.0	15.0
Earthquake and fire	26.2	25.2	37.7	0.1
Other violence	72.3	82.4	68.2	77.6
All other causes	67.7	96.0	66.2	58.8

Table 3 shows that the various epidemic diseases cause rather large proportions of all deaths in Northern California, the proportion for this division being higher than the State average in the case of every epidemic disease except measles and scarlet fever. In Northern California, also, the proportion is high for diseases of the nervous system other than meningitis, being 112.2 here against a general average of only 81.0. Central California excels particularly in the proportion of all deaths caused by diseases of the circulatory system (heart disease, etc.), the proportion for such diseases per 1,000 total deaths being 136.5 for this division, against only 126.3 for the State. Southern California leads especially in the proportion of all deaths due to tuberculosis, the proportion for tuberculosis of the lungs being 196.9 per 1,000 total deaths for the seven counties south of Tehachapi, as compared with only 134.0 for the State as a whole. In Southern California, too, the proportion is high for measles, being 7.2 here against a State average of 4.7 per 1,000 total deaths.

Table 4 presents similar figures for the eight minor geographic divisions.

TABLE 4.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Minor Geographic Divisions: 1905–1906.*

Cause of Death.	The State.	Northern California.		Central California.				Southern California.	
		Coast Counties.	Interior Counties.	San Francisco.	Other Bay Counties.	Coast Counties.	Interior Counties.	Los Angeles.	Other Counties.
DEATHS: 1905-1906.									
ALL CAUSES	27,026	1,457	1,636	7,010	3,133	2,176	4,401	4,638	2,575
Typhoid fever	425	19	36	83	37	33	125	59	33
Malarial fever	90	4	35	6	2	3	30	5	5
Smallpox	27	1	3	11	5	----	6	1	----
Measles	128	5	2	38	15	4	12	39	13
Scarlet fever	45	2	3	10	7	2	10	9	2
Whooping-cough	174	14	20	30	24	19	14	34	19
Diphtheria and croup	234	12	19	49	29	18	36	48	22
Influenza	217	19	31	27	17	25	33	32	33
Other epidemic diseases	193	18	22	45	16	13	33	30	16
Tuberculosis of lungs	3,622	156	153	792	303	262	536	934	486
Tuberculosis of other organs	561	35	21	147	69	50	92	97	50
Cancer	1,428	69	67	380	189	118	216	278	111
Other general diseases	1,020	45	76	275	109	67	187	183	78
Meningitis	448	22	24	110	67	26	81	68	50
Other diseases of nervous system	2,190	220	127	414	245	221	385	319	259
Diseases of circulatory system	3,413	152	192	1,052	448	271	511	542	245
Pneumonia and bronchopneumonia	2,153	107	143	649	281	131	344	343	155
Other diseases of respiratory system	767	42	50	213	102	61	103	136	60
Diarrhea and enteritis, under 2 years	700	21	26	215	103	57	112	99	67
Diarrhea and enteritis, 2 years and over	278	14	10	52	36	33	64	45	24
Other diseases of digestive system	1,427	72	101	379	175	99	244	256	101
Bright's disease and nephritis	1,407	53	62	388	201	110	165	281	147
Childbirth	262	9	18	50	34	34	48	44	25
Early infancy	851	22	40	244	120	43	146	175	61
Suicide	474	26	23	160	59	39	59	76	32
Earthquake and fire	709	76	2	463	12	150	5	1	----
Other violence	1,955	94	161	372	217	136	415	284	276
All other causes	1,828	128	169	356	211	151	389	220	204

TABLE 4.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Minor Geographic Divisions: 1905-1906—Continued.*

Cause of Death.	The State	Northern California.		Central California.				Southern California.	
		Coast Counties.	Interior Counties.	San Francisco.	Other Bay Counties.	Coast Counties.	Interior Counties.	Los Angeles.	Other Counties.
PROPORTION PER 1,000 TOTAL DEATHS.									
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	15.7	13.0	22.0	11.8	11.8	15.2	28.4	12 7	12.8
Malarial fever	3.3	2.8	21.4	0 9	0.6	1.4	6.8	1.1	2.0
Smallpox	1 0	0.7	1 8	1 6	1.6	.....	1.4	0.2	.....
Measles	4.7	3.4	1.2	5.4	4.8	1.8	2.7	8.4	5.1
Scarlet fever	1.7	1.4	1.8	1.4	2.2	0.9	2.3	1.9	0.8
Whooping-cough	6.4	9.6	12.2	4.3	7.7	8.7	3.2	7.3	7.4
Diphtheria and croup	8.7	8.2	11.6	7.0	9.3	8.3	8.2	10.4	8.9
Influenza	8.0	13.0	19.0	3.8	5.4	11.5	7.5	6.9	12.8
Other epidemic diseases	7.2	12.4	13.4	6.4	5.1	6.0	7.5	6.5	6.2
Tuberculosis of lungs	134.0	107.1	98.5	113.0	96.7	120.4	121.8	201.4	188.7
Tuberculosis of other organs	20.8	24.0	12.8	21.0	22.0	23.0	20.9	20 9	19.4
Cancer	52 8	47.4	41.0	54.2	60.3	54.2	49.1	59.9	43.1
Other general diseases	37.7	30.9	46.5	39.2	34.8	30.8	42.5	39.5	30.3
Meningitis	16.6	15.1	14.7	15.7	21.4	11.9	18.4	14.7	19.4
Other diseases of nervous system	81.0	151.0	77.6	59.1	78.2	101.6	87.5	68.8	100.6
Diseases of circulatory system	126.3	104.3	117.4	150.1	143.0	124.5	116.1	116.9	95.2
Pneumonia and broncho-pneumonia	79.7	73.4	87.4	92.6	89.7	60.2	78.2	74.9	60.2
Other diseases of respiratory system	28.4	28.8	30.6	30.4	32.6	28.0	23.4	29.3	23.3
Diarrhea and enteritis, under 2 years	25.9	14.4	15.9	30.7	32.9	26.2	25.5	21.3	26.0
Diarrhea and enteritis, 2 years and over	10.3	9.6	6.1	7.4	11.5	15.2	14.6	9.7	9.3
Other diseases of digestive system	52.8	49.4	61.7	54.1	55.9	45.5	55.4	55.2	39.2
Bright's disease and nephritis	52 1	36.4	37.9	55.3	64.2	50.6	37.5	60.6	57.1
Childbirth	9.7	6 2	11.0	7.1	10.8	15.6	10.9	9 5	9.7
Early infancy	31.5	15.1	24.5	34 8	38.3	19.8	33.2	37.7	23.7
Suicide	17.5	17 8	14.1	22 8	18.8	17.9	13.2	16.4	12.4
Earthquake and fire	26 2	52 2	1 2	66.0	3.8	68.9	1.1	0.2	.....
Other violence	72.3	64.5	98.4	53.1	69.3	62.5	94.3	61.2	107.2
All other causes	67.7	87.9	103.3	50 8	67 3	69.4	88.4	47 4	79.2

It appears from Table 4 that the coast counties of Northern California have a very high proportion of deaths due to diseases of the nervous system other than meningitis. This is accounted for by the fact that many of the deaths reported for this geographic division occurred at the Mendocino and Napa State Hospitals.

The interior counties of Northern California have high proportions for various epidemic diseases. Thus, the proportion for this division as compared with the average for the State is 21.4 against 3.3 for malarial fever, 19.0 against 8.0 for influenza, 12.2 against 6.4 for whooping-cough, 22.0 against 15.7 for typhoid fever, and 11.6 against 8.7 for diphtheria and croup.

In San Francisco the proportion is particularly high for diseases of the circulatory system, being 150.1 here against 126.3 for the State. The proportions for San Francisco are also considerably above the State averages for pneumonia and broncho-pneumonia, 92.6 against 79.7; for diarrhea and enteritis among children under 2 years of age, 30.7 against 25.9; and for suicide, 22.8 for the metropolis, against 17.5 for the State.

In the other bay counties, as in the metropolis itself, the proportion *of all deaths caused by* diseases of the circulatory system is very high,

being 143.0 for this group of suburban counties, against only 126.8 for the State as a whole.

The coast counties of Central California, like the coast counties of Northern California, have a high proportion for diseases of the nervous system other than meningitis (101.6 against 81.0), and the explanation is that the returns for this division include numerous deaths at the Agnews State Hospital.

The interior counties of Central California, like the interior counties of Northern California, have high proportions for certain epidemic diseases. The proportion of all deaths caused by malarial fever is 6.8 for this division, against 3.3 for the State, and the proportion due to typhoid fever is 28.4 for the division, against 15.7 for the State.

Los Angeles has a very high proportion of deaths due to tuberculosis of the lungs. The proportion for Los Angeles is no less than 201.4, as compared with only 134.0 for the State. Los Angeles also has a high proportion for measles and for diphtheria and croup, the proportions being 8.4 and 10.4 for the county, against 4.7 and 8.7, respectively, for the entire State.

The other six counties south of Tehachapi likewise have a high proportion for tuberculosis of the lungs, 188.7 against 134.0, as well as for diseases of the nervous system other than meningitis, 100.6 against 81.0. As for the coast counties of Northern and Central California, so for the counties of Southern California, the high proportion for nervous diseases is explained by the inclusion of deaths at State hospitals. The very high proportions of all deaths caused by tuberculosis both in Los Angeles and the other counties south of Tehachapi are accounted for by the great number of newcomers from Eastern states who succumb to the "great white plague" even after they reach the Land of Sunshine.

Tuberculosis.—Table 5 brings out sharply the contrasts between different parts of the State in the mortality from tuberculosis.

TABLE 5.—*Number and Per Cent of Total Deaths from Tuberculosis and All Other Causes, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total Deaths: 1905-1906.	Tuberculosis.		All Other Causes.	
		Number.	Per Cent	Number.	Per Cent.
THE STATE	27,026	4,183	15.5	22,843	84.5
Northern California	3,093	365	11.8	2,728	88.2
Coast counties	1,457	191	13.1	1,266	86.9
Interior counties	1,636	174	10.6	1,462	89.4
Central California	16,720	2,251	13.5	14,469	86.5
San Francisco	7,010	939	13.4	6,071	86.6
Other bay counties	3,133	372	11.9	2,761	88.1
Coast counties	2,176	312	14.3	1,864	85.7
Interior counties	4,401	628	14.3	3,773	85.7
Southern California	7,213	1,567	21.7	5,646	78.3
Los Angeles	4,638	1,031	22.2	3,607	77.8
Other counties	2,575	536	20.8	2,039	79.2
Northern and Central California	19,813	2,616	13.2	17,197	86.8
Coast counties	13,776	1,814	13.2	11,962	86.8
Interior counties	6,037	802	13.3	5,235	86.7
Metropolitan area	10,143	1,311	12.9	8,832	87.1
Rural counties	9,670	1,305	13.5	8,365	86.5

It appears from this table that the 4,183 deaths from tuberculosis in California are 15.5 per cent, or over one seventh, of the total 27,026, reported in 1905–1906. The per cent of total deaths caused by tuberculosis is no less than 22.2 for Los Angeles and 20.8 for the other six counties south of Tehachapi. The per cent is below the State average, 15.5, for every geographic division north of Tehachapi. It is as low as 11.9 for the bay counties other than San Francisco, and only 10.6 for the interior counties of Northern California.

However, it must be remembered that deaths of newly arrived consumptives are much more numerous in Southern California than in the rest of the State. This appears clearly from Table 6, showing the length of residence in California of those who died of tuberculosis in 1905–1906.

TABLE 6.—*Deaths from Tuberculosis classified by Length of Residence in California, with Per Cent Distribution, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total.	Length of Residence.				
		Under 1 Year.	1 to 9 Years.	10 Years and Over.	Life.	Unknown.
NUMBERS.						
THE STATE	4,183	557	831	1,188	1,187	420
Northern California	365	15	40	123	136	51
Coast counties	191	6	20	62	72	31
Interior counties	174	9	20	61	64	20
Central California	2,251	106	315	759	830	241
San Francisco	939	31	108	336	342	122
Other bay counties	372	15	53	135	142	27
Coast counties	312	22	51	73	150	16
Interior counties	628	38	103	215	196	76
Southern California	1,567	436	476	306	221	128
Los Angeles	1,031	278	342	195	125	91
Other counties	536	158	134	111	96	37
Northern and Central California	2,616	121	355	882	966	292
Coast counties	1,814	74	232	606	706	196
Interior counties	802	47	123	276	260	96
Metropolitan area	1,311	46	161	471	484	149
Rural counties	1,305	75	194	411	482	143
PER CENTS.						
THE STATE	100.0	13.3	19.9	28.4	28.4	10.0
Northern California	100.0	4.1	10.9	33.7	37.3	14.0
Coast counties	100.0	3.1	10.5	32.5	37.7	16.2
Interior counties	100.0	5.2	11.5	35.0	36.8	11.5
Central California	100.0	4.7	14.0	33 7	36.9	10.7
San Francisco	100.0	3.3	11.5	35.8	36.4	13.0
Other bay counties	100.0	4.0	14.2	36.3	38.2	7.3
Coast counties	100.0	7.1	16.3	23.4	48.1	5.1
Interior counties	100.0	6.1	16.4	34.2	31.2	12.1
Southern California	100.0	27.8	30.4	19.5	14.1	8.2
Los Angeles	100.0	27.0	33.2	18.9	12.1	8.8
Other counties	100.0	29.5	25.0	20.7	17.9	6.9
Northern and Central California	100.0	4.6	13.6	33.7	36.9	11.2
Coast counties	100.0	4.1	12.8	33.4	38.9	10.8
Interior counties	100.0	5.9	15.3	34.4	32.4	12.0
Metropolitan area	100.0	3.5	12.3	35.9	36.9	11.4
Rural counties	100.0	5.7	14.9	31.5	36.9	11.0

Table 6 shows that 27.8 per cent of those who died of tuberculosis in Southern California had lived in the State less than a year, the per cent being 27.0 for Los Angeles and even 29.5 for the other six counties. The corresponding figure for Northern and Central California together is only 4.6, and that for the entire State is 13.3 per cent.

In fact, many of the tuberculosis victims in Southern California had been in the State only a few months. This is shown clearly by the following tabular statement, giving the length of residence in months of those who died of tuberculosis in Los Angeles and the other counties of Southern California after having been in the State less than a year:

Geographic Division.	Total Under 1 Year.	Length of Residence.			
		Under 1 Month.	1 to 2 Months.	3 to 5 Months.	6 to 11 Months.
NUMBERS.					
Southern California	436	55	114	120	147
Los Angeles	278	36	66	82	94
Other counties	158	19	48	38	53
PER CENTS.					
Southern California	27.8	3.5	7.3	7.6	9.4
Los Angeles	27.0	3.5	6.4	8.0	9.1
Other counties	29.5	3.5	9.0	7.1	9.9

It appears from the preceding tabular statement that of all who died of tuberculosis in Southern California 3.5 per cent had been in the State less than a month, altogether 10.8 per cent less than three months, and altogether 18.4 per cent less than six months. In Los Angeles 17.9 per cent, and in the other counties 19.6 per cent, of the total victims of tuberculosis had lived in California less than half a year.

Referring again to Table 6, one finds that while in Southern California altogether 58.2 per cent of all tuberculosis victims had lived in the State less than 10 years, in Northern and Central California together only 18.2 per cent had lived here this length of time, the per cent for the whole State being 33.2.

Native Californians form a considerable proportion of all who succumb to tuberculosis in Northern and Central California. Thus, the per cent of native Californians among all who died of tuberculosis is 37.3 for Northern California, and 36.9 for Central California, as compared with 28.4 for the entire State, and only 14.1 for Southern California.

Similarly, deaths of old-time residents from tuberculosis are relatively more numerous north than south of Tehachapi. The per cent of tuberculosis victims who had lived here at least ten years is 33.7 for both Northern and Central California, against 19.5 for Southern California and an average of 28.4 for the whole State.

(Concluded in Monthly Bulletin for October.)

VITAL STATISTICS FOR SEPTEMBER.

Summary.—For September there were reported 1,741 living births; 1,906 deaths, exclusive of stillbirths; and 1,444 marriages, the marriage returns being incomplete. For an estimated State population of *1,882,483 in 1906* the returns for September give the following annual *rates: Births, 11.1;* deaths, 12.1; and marriages, 9.2, per 1,000 population.

As usual, tuberculosis was the leading cause of death, and typhoid fever was the most fatal epidemic disease.

Causes of Death.—The following table gives the number of deaths due to certain principal causes in September, as well as the proportion from each cause per 1,000 total deaths for both September and August:

Cause of Death.	Deaths: September.	Proportion per 1,000.	
		September.	August.
ALL CAUSES	1,906	1,000.0	1,000.0
Typhoid fever	56	29.4	34.2
Malarial fever	17	8.9	4.7
Smallpox			
Measles	3	1.6	1.4
Scarlet fever			
Whooping-cough	6	3.2	5.2
Diphtheria and croup	12	6.3	3.8
Influenza	1	0.5	0.5
Other epidemic diseases	14	7.3	5.2
Tuberculosis of lungs	207	108.6	132.5
Tuberculosis of other organs	43	22.6	15.2
Cancer	110	57.7	54.1
Other general diseases	69	36.2	35.1
Meningitis	30	15.8	10.0
Other diseases of nervous system	189	99.2	82.2
Diseases of circulatory system	229	120.1	134.4
Pneumonia and broncho-pneumonia	106	55.6	49.4
Other diseases of respiratory system	50	26.2	16.1
Diarrhea and enteritis, under 2 years	102	53.5	47.5
Diarrhea and enteritis, 2 years and over	25	13.1	19.0
Other diseases of digestive system	85	44.6	53.2
Bright's disease and nephritis	115	60.3	52.2
Childbirth	15	7.9	10.0
Early infancy	57	29.9	36.1
Suicide	37	19.4	22.3
Other violence	175	91.8	102.1
All other causes	153	80.3	73.6

Tuberculosis, as usual, was the leading cause of death in September, but diseases of the circulatory system (heart disease, etc.) were a close second. Altogether 250 deaths, or 13.1 per cent of all, were caused by tuberculosis of the lungs and other organs, while 229, or 12.0 per cent, were due to various diseases of the circulatory system.

Of the epidemic diseases, typhoid fever caused 56 deaths in the month, malarial fever 17, diphtheria and croup 12, whooping-cough 6, and measles 3.

DUTIES OF PARENTS TO CHILDREN.

In each of the last two numbers of the Bulletin we have had occasion to speak of the school system of California in relation to the health and wellbeing of the children. It was done in the firm conviction that our children are suffering from its evil effects and that the coming generation will pay the penalty in men and women, many of whom are shattered in constitution and most of whom are poorly educated when viewed from the standpoint of productive usefulness. It is an age of restlessness and ambition, and we are living and acting on too high a tension. Men and women are striving to accumulate wealth, social renown *and political* influence and are urging their children forward to

greater efforts in their studies. For nine months out of the twelve the children are kept in school under high pressure, with music, dancing and entertaining thrown in, to occupy the time during the non-school hours. In some instances the other three months are devoted to rest and recuperation, but too often in an effort to make up some deficient study, or even to enter a more advanced class. No school system, or want of system, is to blame for this. It is purely and simply the fault of the parents, and upon them must fall the blame of much, yes, very much, of the ill health, broken constitutions, and death among children. Ambitious for their children to be bright and shining stars in the social or business firmament, they force upon them a course that early transfers them to the celestial one, where they are at least supposed to be free from the eternal grind that has always been theirs.

Conditions like these are not pleasant to look at or consider, but they are real and not fancied. The "strenuous life" is upon us, and will stay for a long time yet. The older people will not readily give up their ambitions, but we can at least spare the young ones and let them have the simple life of childhood. Their forty weeks of schooling they must have, as long as such is the way, and they must take it according to rule, but their pathway can and must be relieved of all obstructions. Nothing should be placed in their way and no extra strain be put upon their nerves, and nothing strains them so much as irregular habits of life, especially in eating and hours of rest. This is completely under the control of the parents, and if they will only appreciate the danger and act accordingly, more will be done to give us healthy, robust children than in any other way.

Great care must be exercised in feeding the child, for upon the food depends the physical growth, and upon the physical the mental strength. Food should be plain and nutritious. Milk, eggs, meat, vegetables, and fruits in well-regulated quantities—which will depend in large measure upon the characteristics and temperament of the child—but never in too great excess. Cakes, pies, and sweetmeats while not excluded from the diet should be used with extreme caution; they are hard to digest and do not furnish nourishment in its best form. The parent should always remember that the child's appetite can not always be depended upon as a test of what is best. It may dictate that the child go to school without breakfast, a habit which will lead to evil results, and should under no circumstances be allowed. Always see that the child eats its breakfast, even if you have to pamper the appetite a little, not with cake or sweets, but with some nicely cooked dish which particularly appeals to that particular appetite. Eating between meals should not be encouraged, neither should a child with a delicate appetite be allowed to go hungry. A drink of pure milk, or a piece of bread and butter, will seldom hurt a child and may save much suffering.

Perhaps the greatest cause of breakdown for which the parent is responsible is the irregularity and want of proper sleep. The hours of darkness were intended for rest, and daylight for activity, and it is a mistake to let children reverse the order. The three hours before midnight are far better for rest than the three after 6 A. M. Habit through long years may make one enjoy his morning naps, but it is not nature's way, and in children especially, the loss of sleep in the first part of the night is to be deplored, and the more if the time has been spent in exciting amusements.

The child's mind should be kept as free and clear as possible. It is a delicate machine, and must not be overworked nor wrenched about with excitement. Long sessions on the piano stool, or frequent and late parties, will wreck the health of almost any child.

The daylight hours out of school should be spent as much as possible in the open air, in play and helpful employment, and the night, after 9 o'clock, in bed, which, by the way, should be in the open air as much as possible, never in a close, ill-ventilated room. If this be done the parents can rest assured that they have removed one of the great causes of breakdown in their children, and can with a clear conscience hold the school system responsible for its faults.

STATE HYGIENIC LABORATORY.

The State maintains, under the direction of the State Board of Health, a Hygienic Laboratory for the aid of health officers and physicians in their efforts to guard the public health. This laboratory is located at the State University at Berkeley and is under the immediate direction of Prof. A. R. Ward, to whom communications should be sent. The laboratory is equipped to make bacterial examinations for diphtheria, tuberculosis, typhoid and the less common bacterial diseases, and also water analyses. Containers for any of these will be furnished upon application and full directions given for properly securing the sample. Do not send in any other way than this. The samples of contagious disease products must be sent with the greatest care, and it is useless to send water in any other way than as directed. There are no charges for the laboratory service, and the only cost will be to mail or express the sample. Answer will be sent by mail, unless it is expressly requested that it be sent by telephone or telegraph, in which case the applicant will pay the charge for the message.

Where water is suspected of pollution, a careful examination should always be made to find the source of such pollution, and a full account of the results sent to the laboratory with the sample. It should be remembered that a bacterial examination of a water supply is not infallible. It can only tell what the condition is in that particular small quantity examined. There might be a temporary cessation of the pollution, or where the supply is large the mixture of pure and polluted may not be complete, and the sample taken from the pure.

In connection with this work the State Board of Health is trying to make arrangements to investigate all epidemics resulting from polluted waters, or other causes especially epidemic of typhoid fever. As this will involve considerable expense, it may not be possible in the near future, but local health officers can do much in this direction and furnish the State office valuable data.

Health officers should always report epidemics to the State Board of Health at Sacramento, and we will assist the local authorities to the limit of our power in discovering and removing the cause of the trouble.

CALIFORNIA PUBLIC HEALTH ASSOCIATION.

The semi-annual meeting of the California Public Health Association convened at Alum Rock Springs, San José, on October 12th.

The San José Chamber of Commerce and the Alum Rock Park Commissioners had planned for an excellent luncheon and a place of

meeting. President Simpson had completed the plans by arranging transportation for the delegates through the courtesy of the Alum Rock Railway Company.

The general subject for discussion was the use and abuse of mineral springs in California, two comprehensive and practical papers being read. Dr. Robert Crees of Paso Robles confined his paper largely to the uses and limitations of California's mineral springs in general therapeutics. Dr. Philip Mills Jones based a very forcible discussion of the "quackery" of mineral springs treatment of diseases upon selected extracts from the advertising folders of the many health resorts in California.

The discussions which followed the papers were most interesting and instructive. The prevailing opinion expressed fear that the great value of our mineral springs would be ruined if ignorant or unprincipled promoters were permitted indefinitely to exploit their real usefulness by the present unwarranted methods.

Many suggestive plans were advanced for the education of the public and the passage of prohibitive laws. The association passed resolutions recommending the establishment of a chemical laboratory under the control of the State Board of Health and the publication by the latter of tables of uniform analyses of the water from all the mineral springs of the State, together with a sanitary report of each spring and therapeutical and climatological comments.

It was also suggested that such reports should be forwarded to the proprietors of the springs in question, with permission to publish the letter in full, duly approved by the officers of the Public Health Association and indorsed by the State Medical Society.

The Public Health Association is composed of representatives from every organization interested in any phase of public or personal health. All persons interested are eligible to membership. The meetings are characterized by open and spirited discussions of all sides of each question by both medical and lay representatives. Under these conditions, it is believed that the resolution adopted will appeal to the public, as coming from an entirely disinterested organization after thorough discussion by business men, bankers, engineers and medical men.

Two subjects were proposed for discussion at the next meeting in Monterey in April, 1907:

1. "The Disposal of Sewage" was presented by Dr. Osborne of Santa Clara.

2. "Practicable Methods of Raising the Standard of Health of School Children" was proposed by Mrs. Helen Moore of San Francisco.

A committee composed of Dr. Osborne, Dr. Clarke, and Dr. Foster was appointed to prepare a programme.

Inasmuch as the association has no dues and no source of revenue, it was urged on each representative to personally explain the purposes of the organization to every friend interested in sanitation and good health to the end that the association's meetings may be more fully representative of all professions and all occupations.

The session closed with a formal vote of thanks to the Chamber of Commerce, to Dr. Simpson, and to others contributing by their generous activity toward the general success of the day.

CALIFORNIA STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

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NOTICE TO REGISTRARS.

California a Registration State.—The Federal Census Bureau has added California to the few states from which death returns are accepted as being satisfactorily complete. There were but 11 registration states in 1900, and only 5 were added in 1906. Besides California, the 16 registration states now comprise Colorado, Connecticut, District of Columbia, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, South Dakota, and Vermont. These include the populous New England and Middle Atlantic states, a few of the most progressive Western states, and California alone on the Pacific Coast. California is thus honored by being listed with the leading states of the Union because our 1905 law for the registration of deaths is based on correct principles, as recommended by the Federal Census Bureau and the American Public Health Association, and also because local registrars throughout California have coöperated with the State Registrar by enforcing the law in a reasonably satisfactory manner.

However, this honor to the Golden State may no longer be enjoyed, if there should ever be any vital modification of the present excellent law or if there should be any failure to enforce it fully throughout California. Local registrars should therefore be vigilant in requiring undertakers to file death certificates with them that are filled out completely and satisfactorily. Age, for instance, should never be left unknown, but should be given as closely as it can be estimated from the appearance of the deceased.

Especial attention must be paid to the proper statement of the cause of death. Where death results from any form of violence, coroners must be held to a strict compliance with their duty under the State law and in all such cases must be compelled to state specifically whether it was *accidental, suicidal,* or homicidal. When coroners investigate

deaths not resulting from violence, they must not be allowed to credit the death merely to "natural causes," but must be required to comply properly with the law by reporting just what disease caused the death, as tuberculosis, pneumonia, heart disease, Bright's disease, etc.

In all cases where a physician certifies to the cause of death, local registrars should withhold the issuance of the required burial or removal permit unless the cause of death is given in definite, satisfactory terms. Such indefinite expressions as "heart failure," "hemorrhage," "abscess," "fever," "marasmus" or "debility" (for adults), "dropsy," and "asthenia," are utterly unsatisfactory, and burial or removal permits should not be issued for death certificates with the cause of death thus carelessly stated.

VITAL STATISTICS FOR OCTOBER.

Summary.—For October there were reported 1,693 living births; 2,134 deaths, exclusive of stillbirths; and 1,376 marriages, the marriage returns being somewhat incomplete. The population of California in 1906, estimated by the Census Bureau method with slight modifications, is 1,882,846. For this population the October returns give the following annual rates: Births, 10.8; deaths, 13.6; and marriages, 8.8, per 1,000 inhabitants.

As usual, tuberculosis was the leading cause of death, with diseases of the circulatory system a close second. Typhoid fever was the most fatal epidemic disease, causing 94 deaths, or 4.4 per cent of all.

Causes of Death.—The following table gives the number of deaths due to certain principal causes in October, as well as the proportion from each cause per 1,000 total deaths for both October and September:

Cause of Death.	Deaths: October.	Proportion per 1,000.	
		October.	September.
ALL CAUSES	2,134	1,000.0	1,000.0
Typhoid fever	94	44.1	29.4
Malarial fever	12	5.6	8.9
Smallpox			
Measles	5	2.3	1.6
Scarlet fever	2	0.9	
Whooping-cough	6	2.8	3.2
Diphtheria and croup	18	8.4	6.3
Influenza	5	2.3	0.5
Other epidemic diseases	8	3.8	7.3
Tuberculosis of lungs	252	118.1	108.6
Tuberculosis of other organs	37	17.3	22.6
Cancer	127	59.5	57.7
Other general diseases	81	38.0	36.2
Meningitis	26	12.2	15.8
Other diseases of nervous system	164	76.9	99.2
Diseases of circulatory system	258	120.9	120.1
Pneumonia and broncho-pneumonia	166	77.8	55.6
Other diseases of respiratory system	41	19.2	26.2
Diarrhea and enteritis, under 2 years	90	42.2	53.5
Diarrhea and enteritis, 2 years and over	30	14.1	13.1
Other diseases of digestive system	120	56.2	44.6
Bright's disease and nephritis	120	56.2	60.3
Childbirth	19	8.9	7.9
Early infancy	88	41.2	29.9
Suicide	37	17.3	19.4
Other violence	180	84.4	91.8
All other causes	148	69.4	80.3

In October, as usual, tuberculosis was the leading cause of death, but, as in September, diseases of the circulatory system (heart disease, etc.) were a close second. Altogether, 289 deaths, or 13.5 per cent of all, were caused by tuberculosis of the lungs and other organs, while 258, or 12.1 per cent, were due to various diseases of the circulatory system.

Typhoid fever caused 94 deaths, or 4.4 per cent of all, in October, against only 2.9 per cent for September. There were 18 deaths from diphtheria and croup, 12 from malarial fever, 6 from whooping-cough, 5 each from scarlet fever and influenza, and only 10 from all other epidemic diseases.

HEALTH OFFICERS OF SOUTHERN CALIFORNIA.

The Southern California Medical Society will hold its next meeting December 5 and 6, in Los Angeles, and the section of Public Health and Hygiene will meet at 9:30 A. M. on December 6. Dr. Hoell Tyler, President of the Society, has kindly consented that the State Board of Health invite all the health officers of Southern California to meet and take part in this section, with the object of extending its usefulness and possibly to form an auxiliary association.

Every branch of industry and all classes of people who are working along the same general lines, find it necessary, in order to accomplish the most work, to have an organization where questions pertaining to their work can be discussed. Health officers are no exception, and indeed, perhaps there is no calling where organization can do so much good, both to the members and to the general public, as with us. While the lines of the territory over which we have actual jurisdiction are well defined, the influence of our work is unlimited and knows no boundary. Disease will not respect territorial lines nor keep within the limits of any one officer's domain. Probably no health officer of any extended experience but has often been annoyed and perplexed at his inability to check the spread of disease that was endangering his district, but was outside of it. We have many prosperous cities and towns whose territory extends to unorganized country where health officers and sanitation are both unknown. The county may have such an official, but located so far away that two days would be required to get him there. With a proper organization composed of all health officers, uniform regulations could be adopted and enforced, and much valuable time saved, misunderstandings would be avoided, and good feeling and mutual aid established.

All health officers are cordially invited and urged to attend this meeting and use their best efforts to organize in a manner that will command the respect of citizens, cultivate a mutual acquaintance and coöperation, and make more effective their work in the cause of public health.

STAMPING OUT CONTAGIOUS DISEASE.

Madera has lately had quite a severe epidemic of scarlet fever. There is nothing uncommon in this; many other towns have had the same, but the means taken to stamp it out are worthy of note. When it became evident that the disease was epidemic, Dr. Mary R. Butin, the very efficient health officer of that city, took the work in hand, and soon had it under control. The schools were all visited and each scholar

examined for evidence of the disease. Each absentee was also seen and examined. If there was sore throat, fever, eruption, or scales, the child was at once sent home and isolated. The school-rooms were closed and thoroughly disinfected. This effective work soon accomplished the end sought and the epidemic ceased. Sporadic cases will probably occur for a few weeks, owing to the fact that it is almost or quite impossible to catch all the cases.

Dr. Reinhardt, Health Officer of Berkeley, in coöperation with the Superintendent of Schools, has adopted similar methods to stamp out diphtheria. In the school of that city where it exists they are having a culture made from the throat of each pupil and of each absentee. If the diphtheria bacilli are found the person will be isolated until such time as the throat is free from disease. It is easy to foresee the result. Diphtheria will vanish from the school.

These are long steps in the direction we must surely go if we expect to check contagious disease. Disinfection of rooms and things, properly done, *after* the persons are entirely free from the disease, is all right and should be attended to, but done before all persons are well is a waste of time, money, and energy, and worse than useless, as it gives a feeling of security that is without basis.

The danger is from partially recovered patients who are still swarming with bacteria, and from others equally dangerous, who, while not sick enough to feel the necessity of employing a physician, are still producers of the disease germ.

Schools should be carefully examined every morning in order to catch early cases of disease. This should be done by a physician; but the teacher could learn the early symptoms of disease, and, if her suspicion was aroused, call the physician who had been assigned to that school. The saving of money, health, and life, if this were done, would be incalculable.

We wish to congratulate the communities who have health officers with the amount of efficiency necessary to take such steps.

TYPHOID FEVER.

The more than common prevalence of typhoid fever in the State is a cause of no little anxiety. While the country around San Francisco Bay is perhaps more affected than any other part of the State, there is no portion exempt.

The State Board of Health has taken up the investigation of the causes through the State Hygienic Laboratory and the coöperation of Dr. Snow of the Hygienic Department of Stanford University. Necessarily investigations are slow when the area is so large, and meanwhile every one should exercise the greatest care to avoid contracting the disease, and those affected against giving it to others. Certain facts in relation to the disease can not be too frequently or strongly impressed upon the people.

First and foremost, every one should remember that typhoid fever is a communicable disease and that every case comes from some preceding case. The means of communication are the discharges from the body—*feces, urine, and sputa.* These contain great quantities of the germs,

and if taken into the mouth of another, either in water, food, or from infected hands, dishes, insects, or any other thing, that party may contract the disease. This points at once to the way to prevent the spread of typhoid fever. Destroy absolutely all discharges from the body of the patient. All sputa should be received on cloths or paper and burned at once. Discharges from bowels and kidneys should be received in a vessel with a plentiful supply of a strong antiseptic solution and allowed to stand for two hours, and if the feces are hard they should be broken up. They can then be buried or put into the sewer. The following solutions are good for this purpose:

Carbolic acid, 7 ounces to gallon of water.
Chloride of lime, 10 ounces per gallon of water.

It should be remembered, in this connection, that a patient after apparent recovery from typhoid fever will sometimes produce the germs for weeks and months, and that others who have the disease and produce the germs are never sick enough to go to bed. In these cases it is impossible to take the foregoing precautions; but they can and should be careful, as should every one, not to pollute any stream of water or allow flies to have access to the discharges.

All clothing or cloths coming in contact with the patient should be boiled before leaving the house, and no person having charge of a patient should in any way have to do with a dairy or any food products. Flies should be excluded, for they, if allowed on any of the discharges, will carry the disease germs to others by alighting on food, or on the hands or face of the person. All domestic animals should be kept from the sick room.

The following are some of the ways in which the germs pass from one to another:

Probably the principal way is through water into which infected human sewage has passed. The water is polluted by towns sewering into creeks or rivers; drainage from cesspools or vaults into wells; infected dust blowing into reservoirs; by insects, birds, or domestic animals which have become polluted with infected excrement getting into tanks; by people camping on banks of streams and using them as sewers.

Green vegetables, eaten raw, which have been fertilized with human excrement.

Flies lighting on the discharges from a typhoid patient and then on food.

Milk becoming infected by washing cans in infected water, and the possible dilution of milk with the same. Milk may also become infected by a person caring for a typhoid patient, a patient recovering, or a light case working in a dairy.

Clothing worn by a typhoid patient or the bed linen will also carry the disease to another coming in contact with them.

Personal contact, as shaking hands, or otherwise handling a patient, is a frequent cause.

In case typhoid exists in one's vicinity, great care should be taken to prevent contracting it. *All water should be boiled before using.* Ordinary filtering removes dirt, but not germs. Eat no raw vegetables. Drink no soft drinks; they may be made from polluted water. If you do

not know that the milk is above suspicion, boil it. Allow no flies around; they are one of the great causes of infection. Avoid unnecessary contact with the afflicted, and if contact is necessary, wash at once. Live as much as possible in the open air and get all the sunshine possible into houses and disposition. Don't be afraid of the disease, but absolutely refuse to be exposed without cause, or to use infected milk, water, or vegetables. Clean up and destroy all accumulation of dirt, manure, or garbage; they are a breeding place for vermin. Have no open cesspools or broken sewers. Insist that your city fathers furnish you *pure* water, and that they cease polluting the supply of others.

All cases should be reported at once to the health officer, who should see that all precautions are taken to prevent the spread, and hunt out and eradicate the source of infection. Don't wait until an epidemic exists; catch the first case and stop it there. The careless handling of this one may mean the death of many. Last year 425 died of typhoid fever in California, many of them among the most valuable citizens of the State. During the five years when plague existed in the State 113 died of it; the whole country was shaken with horror and hundreds of thousands of dollars were expended in the successful effort of wiping it out of existence. With a death-rate of forty times as great and a disease more easily eradicated, we sit complacently by and see it go on. The responsibility is general and the work must fall on many. Every physician should report his cases and see that all discharges are absolutely destroyed. This is primary and imperative. The health officer should see that this is done, and examine water, milk, and vegetables and any other possible source. The family must recognize the possibility of carrying the disease on their person or clothing, and act accordingly; and lastly, the patient must remember that when apparently well, he is still a producer of germs, and exercise care not to scatter them and endanger others.

SMOKE NUISANCE.

As the wet season approaches, the atmosphere, already heavily laden with smoke and unconsumed carbon from manufactories, will be made still more unbearable by the smoke of thousands of private houses.

This question is getting to be one of importance to California, and one that the Legislature, at no distant day, will have to face. As manufacturing industries increase, the cities and surrounding country will become unpleasant places in which to live, prices of property will materially decline, and, of more importance than all, the general health of the community will suffer. While smoke itself may not carry the germs of disease, it produces conditions that favor their development. It makes ready the soil, and there is plenty of seed with which it is planted. California, with its equable climate, where life in the open air is a joy for twelve months in the year, where fruits and vegetables are always fresh and in abundance, and where all the necessaries and comforts of life can be secured more easily than in any other State, should be one great sanatorium.

Thousands are yearly coming here and are bringing the fortunes made in other states, for investment. The desirableness of this State as a place of residence consists in its healthfulness and pure air. Shall *we destroy these* essential elements of our growth and drive from our

midst such a desirable class of inhabitants? It is not necessary to curtail manufacturing or to hamper it in any way. Science has provided ways to consume the smoke, and with no very great expense. Legislative action, however, is necessary, and should be had at the coming session of the Legislature. The necessity for such action from the standpoint of public health is well shown by the following article from the Journal of the American Medical Association:

THE RELATION OF SMOKE TO SICKNESS.

In connection with certain statements recently made in these columns concerning the relation of wind to sickness, it may be well to call attention to the rôle that smoke plays in producing sickness, especially, of course, of the respiratory tract. As is largely the case with dust in general, the particles of carbon and other matter contained in the smoke with which the atmosphere of our large cities is polluted so extensively do not produce disease directly, but rather prepare the lungs for tuberculosis and other infections. That the inhalation of smoke (and dust in general) is unhealthy can not well be questioned. Statistics show an increase in the mortality from acute pulmonary disease in manufacturing districts where much smoke is generated and also in mining districts. Tuberculosis is said to run a more rapid course in smoky than in smoke-free districts. While the factors that must be considered in order to explain the increased morbidity in these localities are numerous and complex, we can not neglect the evil influence of smoke and of carbon particles in the dust. In the first place, examination of the anthracotic lung of the miner and of the dweller of smoky cities shows changes often so marked as by themselves to cause symptoms of chronic respiratory disease. The blocking of the lymphatics and of the lymph nodes by masses of coal dust can not but interfere with the physiologic functions of these structures. In the second place, Ascher found that of animals experimentally infected with tuberculosis those that were made to inhale smoke died more rapidly than the controls. Further, he found that animals that inhaled small quantities of smoke for some time beforehand acquired pulmonary inflammation on inhaling aspergillus spores, whereas the control animals did not. The results of clinical and experimental observations consequently speak in favor of the harmfulness of smoke. In view of the prevalence and fatality of lobar pneumonia in our large cities, it would be appropriate to seek to place some of the responsibility therefor on their smoke- and dust-laden atmosphere. Fighting "the smoke nuisance" should be made part of the general plan of the campaign now in progress against tuberculosis and pneumonia.

ADULTERATED AND IMPURE MILK FOR CHILDREN.

That many people die each year as the result of using impure milk none will deny. It is equally true that all of these are sacrificed either to greed or ignorance. Desire for undue profit on the part of a few milk producers or handlers is a great element of danger, and their "doctored" products are responsible for many deaths and much sickness. Laws prohibiting the adulteration of milk should be enforced, and all violators should suffer the scorn, contempt, and loss of patronage of the people. The trouble is not, however, caused entirely by the *greedy* dealer. There is a class of milkmen who have been taught and believe that certain preservatives are harmless, and use them with good faith, honestly believing they are doing right and conferring a favor upon the consumers. It is easy for them to believe what is to their advantage, and the many articles by so-called scientific men extolling the use of preservatives naturally have this effect. These dealers can be reached by education, and a rigid enforcement of the law against adulteration is the best lesson.

But the responsibility for impure milk is not all, by any means, with the dealer or producer. The housekeeper is as often to blame. How frequently we see pitchers or pails standing out to be filled with milk when the wagon comes around. Sometimes they are within the reach of domestic animals, and most always where flies and dust can settle

in them. After the milk is taken to the kitchen it is far from being safe from contamination. The pans or bowls to receive it are not always washed and scalded as the regulations of cities rightly require the milk producers to wash and scald their utensils. Sometimes flies have free access to it, and occasionally mice take a sip from the pan. Too close proximity to other food, some of which a heedless cook allows to stand until outlawed by age, does not enhance its value as food for the baby. Some doctors even go so far as to say that fond mothers occasionally feed to their children this same milk from bottles that are not properly washed, and then are so unreasonable as to blame the milkman. The milkman has his full share of faults, and none of them should be minimized, but too often a supply of good milk is spoiled at home. Milk is a most excellent food and should enter fully into the diet of children. It is, however, extremely sensitive to pollution, and is one of the best culture mediums for germs. They grow and develop in it with great rapidity, and any of the many sources of contamination may be the means of causing sickness in the consumer, especially if it is a child.

The State and municipality should insist that pure milk be furnished, and then the housewife's duty and interest is to see that it is kept so. Many of them little appreciate the danger that lurks in milk thus polluted at home, and are too free to blame the wrong source for the sickness that evidently follows its use. They should always receive the milk in a vessel that has been thoroughly scalded, and keep it entirely free from dust. A cloth cover is excellent, but this must be washed daily in boiling water. The ice box is the best place to keep milk, but it should have a separate compartment so the milk would not come in contact with other food. If ice is not used, even greater care should be taken and the coolest possible place selected, where the air has free circulation.

If no dirt or pollution of any kind is allowed in the milk from the time it is drawn until consumed, many of the troubles of childhood would be avoided.

* * * * *

"Deaths due to good sanitation at Panama, has been the startling explanation of the mortality of Jamaica negroes employed on the canal. It is seriously stated that they have cramped lungs due to generations of overcrowding in small, tightly closed, dirty huts, and that they can not withstand the fresh air and cleanliness of the 'model' houses built for them. It is doubtful whether any sanitarians suggested this remarkable explanation, for they must know that the negroes are not living in a proper way if it kills them. The causes must be discovered. There is considerable evidence that the houses are not safe, although airy, bright, and clean. The tropical native, as well as tropical animals, go to great extremes to darken their houses or hiding-places to escape the sun's rays, and have survived, perhaps, because they did hide from this danger. Sunlight may kill bacteria, but its excessive use in phototherapy is destructive of all other tissues also."—*American Medicine.*

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE BOARD OF HEALTH.

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STATE BUREAU OF VITAL STATISTICS.

N. K. FOSTER, M.D., *State Registrar*..Sacramento | GEORGE D. LESLIE, *Statistician*..... Sacramento

STATE HYGIENIC LABORATORY.

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NOTICE TO REGISTRARS.

New Numbers for Certificates.—Local Registrars are reminded of the provision of Section 9 of the death registration law requiring them to number original certificates "in consecutive order, beginning with number one for the first death in each calendar year." After transmitting to the State Registrar certificates for deaths to December 31, 1906, including certificates received by County Recorders from their subregistrars for deaths to the end of the year, each Local Registrar should start a new series of numbers by putting the figure 1 on the first certificate for a death in 1907 filed with him or received from a subregistrar in January.

Since the death certificates are copied for statistical tabulations made by the Federal Census Bureau, it is desirable that the certificates for each calendar year be kept quite separate in numbering, as specifically required by our State law.

The same requirement as to the starting of new series of numbers in 1907, of course, applies also to the numbering of certificates of births and marriages in the order in which they are reported to Local Registrars.

VITAL STATISTICS FOR NOVEMBER.

Summary.—For November there were reported 1,839 living births; 2,585 deaths, inclusive of stillbirths; and 2,158 marriages. For an estimated State population of 1,882,846 in 1906, the November returns give the following annual rates: Births, 11.7; deaths, 16.5; and marriages, 13.8, per 1,000 inhabitants.

In November diseases of the circulatory system, instead of tuberculosis as usual, caused the largest number of deaths, though tuberculosis was a close second, with pneumonia third. Typhoid fever, as before, was the most fatal epidemic disease in the State.

Causes of Death.—The following table gives the number of deaths due to certain principal causes in November, as well as the proportion from each cause per 1,000 total deaths for both November and October:

Cause of Death.	Deaths: November.	Proportion per 1,000.	
		November.	October.
ALL CAUSES	2,585	1,000.0	1,000.0
Typhoid fever	115	44.5	44.1
Malarial fever	12	4.6	5.6
Measles	12	4.6	2.3
Scarlet fever	1	0.4	0.9
Whooping-cough	5	1.9	2.8
Diphtheria and croup	34	13.2	8.4
Influenza	5	1.9	2.3
Other epidemic diseases	9	3.5	3.8
Tuberculosis of lungs	293	113.4	118.1
Tuberculosis of other organs	49	19.0	17.3
Cancer	129	49.9	59.5
Other general diseases	92	35.6	38.0
Meningitis	34	13.2	12.2
Other diseases of nervous system	218	84.3	76.9
Diseases of circulatory system	355	137.3	120.9
Pneumonia and broncho-pneumonia	249	96.3	77.8
Other diseases of respiratory system	70	27.1	19.2
Diarrhea and enteritis, under 2 years	90	34.8	42.2
Diarrhea and enteritis, 2 years and over	25	9.7	14.1
Other diseases of digestive system	105	40.6	56.2
Bright's disease and nephritis	136	52.6	56.2
Childbirth	25	9.7	8.9
Early infancy	93	36.0	41.2
Suicide	30	11.6	17.3
Other violence	203	78.5	84.4
All other causes	196	75.8	69.4

Diseases of the circulatory system (heart disease, etc.) caused 355 deaths, or 13.7 per cent of all, in November, against 342, or 13.2 per cent, for all forms of tuberculosis, which is usually the leading cause of death in California. The total is next highest, 249, or 9.6 per cent, for pneumonia and broncho-pneumonia.

Typhoid fever caused 115 deaths in the month against 34 for diphtheria and croup, 12 each for malarial fever and measles, and only 20 for all other epidemic diseases.

STATISTICS OF DEATHS: 1905-1906.

(Continued from Monthly Bulletin for September.)

Summary of deaths by Sex, Race, Nativity, and Age.—Of the 27,026 deaths in 1905–1906, 16,681, or 61.7 per cent, were male and 10,345, or 38.3 per cent, were female. The per cent male is highest for the interior counties of Northern California, and is lowest for Los Angeles.

The white decedents numbered 25,463, or 94.2 per cent of all, while the Chinese were 731, the negroes 400, the Japanese 319, and the Indians 113.

The per cent white is highest for the six counties of Southern California other than Los Angeles and is lowest for the interior counties of Central California.

The per cents Chinese and Japanese are highest for the interior counties of Central California. The per cent negro is highest for Los Angeles, and the per cent Indian is highest for the coast counties of Northern California.

Of the white decedents, 8,993, or 35.3 per cent, were born in other states than California; 8,155, or 32.0 per cent, were foreign born; 7,193, or 28.3 per cent, were born in California; and 1,122, or 4.4 per cent, were of unknown nativity.

The per cent born in California is highest for San Francisco and the other bay counties, and is lowest for Los Angeles. Conversely, the per cent born in other states is highest for Los Angeles and the other counties south of Tehachapi, but is lowest for San Francisco. The per cent foreign born, however, is highest for the metropolis and lowest for Southern California outside Los Angeles.

The deaths by age periods were as follows: 15 to 64 years, or the "productive ages," 14,213 or 52.6 per cent; 65 years and over, or old age, 7,324 or 27.1 per cent; under 1 year, or early infancy, 2,953 or 10.9 per cent; 1 to 4 years, or childhood, 1,212 or 4.5 per cent; 5 to 14 years, or youth, 891 or 3.3 per cent; and age unknown, 433 or 1.6 per cent.

The per cent of deaths in early infancy is highest for the bay counties other than San Francisco and next for the metropolis itself.

The per cent of deaths in childhood is highest for the six counties of Southern California other than Los Angeles.

The per cent of deaths in youth is highest for Los Angeles and for both the coast and interior counties of Northern California.

The per cent of deaths at the productive ages is highest for Los Angeles and next for San Francisco.

The per cent of deaths at old age is highest for the interior and coast counties of Northern California.

The extended discussion, with statistical tables, from which the above summary was drawn may be found in the Nineteenth Biennial Report of the State Board of Health.

INSTITUTIONAL TREATMENT OF TUBERCULOSIS.

The Anti-Tuberculosis League held its fifth annual meeting in Los Angeles on the evening of December 4. There was a good attendance and reports were received from the following institutions: The Settle-

ment, Redlands; The Health Camp, Pasadena; The Helping Station and Barlow Sanitarium, in Los Angeles. These institutions are all charitable and are dedicated entirely to the relief of those suffering with tuberculosis.

The Helping Station is a clinic at which patients are examined, treatment instituted, and a nurse sent to the house, giving advice and instructions relating to the use of air, light, and food, destruction of the sputa, and the general hygienic conditions. Other members of the family are examined, and oftentimes are found infected when the party or the friends had no idea of such a condition. This getting in touch with cases early, before the disease has made great inroads on the strength and tissues of the persons, gives the greatest chance for cure. It is possible for patients to recover even if the disease has existed long and considerable destruction taken place, but the chances decrease rapidly as the cases progress without care, constantly reinfecting themselves with their own poisonous products and living and eating in a manner most conducive to the advancement of the disease. If we hope ever to stamp out the disease from our State, or even make any great headway in that direction, we must get at the early cases, and the Helping Station, which should exist in every city and town in the State, is a valuable factor in the effort. The expense is not great. No elaborate and expensive buildings are needed, but help and medicine must be paid for. Physicians will oftentimes gladly donate their services, but it is unfair for the community to lay the whole burden upon them. In the long run, it will save any city or county money to support by public tax these stations. It is the poor that must be reached. Let any one go to a public hospital and he would be impressed with the number sustained at public expense, suffering from tuberculosis. Had they been taken in season, through the aid of the Helping Station, they would be self-supporting, if not taxpayers.

The Settlement at Redlands is supported by charity, together with a monthly donation from the County Supervisors of San Bernardino County and the city government of Redlands. In making this payment from the public funds, the officers show themselves to be capable of grasping a situation and a willingness to serve their constituents in the most effective way.

The Health Camp at Pasadena has just been established, and is meeting with unfortunate opposition from some portions of the city. They fear that its presence will be a menace to public health, whereas the facts prove that it is a great protection.

In all these institutions strict rules are laid down and enforced. No one is allowed to expectorate upon the ground, under pain of expulsion. All sputa are collected in cups and burned twice a day, as are the cloths which become soiled with the discharges. Cleanliness is enforced and there is really less danger of infection inside the camp than on the streets of a city. If these same patients were left to go their way as best they could, each one would be a focus of disease, infecting their rooms, the streets, restaurants, every door knob they touch, and the money they may chance to handle. Better have them collected where they will be under close care and taught to so dispose of their poisonous sputa as to make themselves harmless members of society.

The Barlow Sanitarium, in the city of Los Angeles, is delightfully situated and well organized. The expense of this, as of the others, is

about $10 per week per patient for maintenance. This does not include interest on investment, as it is a charitable institution and no profit desired. In order to give the advantages of the institution to as many as possible, those going there are expected to pay one half the expense toward their maintenance, the institution donating the other half, otherwise only half as many could be treated.

It is a sad commentary on the city and county officials of Los Angeles that they do not follow the example of San Bernardino County and Redlands and help in the support of this sanitarium. Some, at least, of the patients there, must inevitably have become charges upon the public, had they not been taken to the sanitarium, and presuming, as we have the right, that such charges are well fed and cared for, their expense would have been at least $200 per year, with little or no chance of cure. If the city or county paid only this small amount it would help, but it would be economy on their part to pay the one half for the support of all the institution could take, of those who can not pay for themselves. This is true of every city, and if these sanitaria were scattered all over the State, supported in part or entirely by the local governments, instead of 15.5 per cent of all deaths being from tuberculosis, it could be brought down to a very much lower figure, saving many valuable lives to the State. Surely if inhabitants are worth seeking they are worth saving.

This league has done and is still doing great good in the way of educating the people about tuberculosis, and it is largely on education among the people that we must depend if we expect to make much headway in combating the disease.

Every county in the State should have such a league and a delegate from each should form a central league. Then, with a minimum of expense, a maximum amount of good could be done. Literature could be distributed, lectures delivered, helping stations and sanitaria established, and it is not too much to believe that eventually a death from tuberculosis would be an uncommon occurrence.

MEETINGS OF HEALTH OFFICERS.

The health officers of Southern California met in Los Angeles December 6 and took the preliminary steps to form a Health Officers' Association. There was a large representation from all parts of the State south of the Tehachapi, and much interest and enthusiasm shown. A committee has the matter of organization in hand and an early meeting will be called and full preparations made for a session in conjunction with the next meeting of the Medical Society of Southern California.

Every health officer, member of a board of health, and any others interested in sanitation should become active and interested members of this association. Prevention of disease is the order of the day, and there is no one but can and should do a share, and they can do more effective work and aid and encourage others better in this way than in any other.

The Central California Health Officers' Association met in their second semi-annual conference in Stockton, December 10. There was

a good attendance from the different parts of the large district represented, and interesting papers and discussions enjoyed.

The subject of disinfection was ably and instructively treated in a paper by the President of the Association, Dr. W. S. Fowler, Health Officer of Kern County. He defined disinfection and insisted that there was no such thing as partial disinfection. That a thing was disinfected only when all disease germs were destroyed. If any were left living, disinfection had not been done. He discussed fully the evil resulting from depending upon terminal disinfection entirely. While not advocating the abandonment of disinfection at the end of disease, he showed that the destruction of the pathogenic germ in the various discharges of the body, throughout the course of the disease, was of equal or more importance. Also, that the danger from unrecovered cases and those not sick enough to require care was vastly more than from infected things.

Vaccination and the dangers resulting from its neglect were also discussed, the feeling being unanimous that if vaccination is neglected we will return to the time when smallpox was as prevalent and deadly as it was before that treatment robbed it of its horrors. The last United States Public Health Report gives the number of deaths from smallpox in California as 11, from June 29 to December 7, and in all the other states together 21. No State is so poorly vaccinated, and in none is there so much opposition to that proceeding. It may take a severe epidemic to bring some to the realizing sense of its utility. Meanwhile we furnish half as many victims to smallpox as all the other states.

It was decided that the meetings would be more effective and be attended by a greater number if held at the same time and place as the San Joaquin Valley Medical Society.

The Association passed a resolution favoring an appropriation of $2,000 by the State Legislature to be used in supporting Health Officers' Associations and in reporting and distributing their work. This is of the greatest importance, for valuable papers are read and the discussions bring out much that is of interest and use to all those interested in sanitation. The State Board of Health is in constant receipt of requests for these reports, but not having any funds from which it can pay for reporting or printing them, they can not be furnished, and much good material is lost.

STOPPING AN EPIDEMIC.

Dr. Ewer, Health Officer of Oakland, has taken effective means to eradicate diphtheria from the Grant School in that city. For some time the disease had been more or less prevalent. Thorough disinfection did not prevent, so cultures were made from the throats of the 800 pupils and teachers and about 25 per cent found infected. Most were unattended by any severe symptom, but the fact that the germ developed in a culture media proved that they were virulent and would spread the disease. Each one found infected will be refused admittance until examination proves freedom from disease. This is a sure and effective way of stopping an epidemic.

TYPHOID FROM OTHER CAUSES THAN WATER.

The backwardness of health departments in protecting city milk supplies from infection by typhoid fever is illustrated by the fact that the city of Denver, Colo., has only within a few weeks passed an ordinance designed to compel dairymen to sterilize their utensils before using them. What other health protective features the ordinance contains, if any, we can not state, but it should strike at the root of the matter by prohibiting the use of impure water for washing milk pails, cans, or bottles. In fact, every city should exclude from delivery or sale within its limits any milk from a dairy farm whose water supply is not above suspicion. At Denver the water company has been bitterly attacked of late on account of the prevalence of typhoid in the city, it being alleged that the responsibility for the disease rested with the company. Without presuming to pass on this contention we do emphatically assert that the time has come for health departments and the public generally to look well to other causes than water for the spread of typhoid. To this end, water departments must, in many cities, insist on the reorganization of health departments and on ample appropriations for health board work. The readers of *Engineering News* could aid greatly in these reforms in their respective localities by lending their influence and intelligence to all movements that will increase the efficiency of general health protective work. One of the most important means to this end is the appointment of well-trained, well-paid, permanent health officers, who give their whole time and energy to the work.—*M. N. Baker, in Engineering News, Nov. 22, 1906.*

The Massachusetts Bulletin for October gives a very interesting and complete investigation of an epidemic of typhoid fever which occurred simultaneously in three centers of population. The outbreak was explosive, and of the 112 cases, 83 per cent received milk from one dairy or from a milk dealer who received part of his supply from that dairy. It was found that shortly before the outbreak a case of typhoid fever had occurred there in one of the employés. The evidence is strong enough to warrant the conclusion that the milk from this dairy caused the epidemic.

PURE FOOD LAW.

For the past twelve months probably no question has been more prominently before the people of this country than that of pure food, and certainly none is of more importance.

It is impossible to tell, with any degree of correctness, the number of deaths caused by the use of impure foods, but, considering their effect in lessening vitality and nutrition, the number must be great, and far in excess of the no small number who die directly from the effects of eating such food.

The greater prevalence, at the present time, of tuberculosis and other diseases which require for their development a low degree of resisting power on the part of the person afflicted, can no doubt be traced to a certain extent to the impure and adulterated food consumed. Without the

proper elimination of the wastes of the body and assimilation of nutrition to take its place, no person can be in health; and these functions will not go on in an efficient manner under the influence of improperly preserved or prepared food.

The National Pure Food Law, which was passed at the last session of Congress, is recognized as a great step in advance, but without proper State laws to supplement it the full benefit will not be realized. The national law is operative only when it concerns interstate trade and gives us no protection from impure home productions.

To cover this, the State Board of Health has had a Pure Food Bill prepared to be presented to the coming Legislature, which will be in perfect harmony with the national law. Such harmony is absolutely necessary, for otherwise there will be a constant conflict, and an honest dealer would be to a great disadvantage.

Give us a State Pure Food Law, but by all means have it harmonious with the national law.

HEALTH AND CLEAN STREETS.

If there is one lesson which the medical knowledge of the last quarter century has made plain, it is the value of cleanliness.

The possibilities of aseptic surgery, the successful treatment of consumption, the conquering of yellow fever and malaria and cholera and the bubonic plague, are all results of what, broadly speaking, may be called the discovery that health is cleanliness. For one form of cleanliness is the purging of the places in which pestilential insects breed.

One of the latest indications that the public is beginning to appreciate the importance of this knowledge is the growing dissatisfaction with dirty streets and littered yards wherever they exist, and a growing tendency to clean them.

Denver is making capital—and honest capital it is—from the excellence of the street-cleaning department, and the hearty coöperation which its citizens give it. American visitors to Paris, and to many other European cities, notably those of Germany and Switzerland, are impressed by the care and thoroughness with which the streets are cleaned. Some Americans, indeed, have had the impression "borne in upon them" by policemen who have seen them drop torn paper in the streets, and compelled them to gather up the pieces again.

That, after all, is the nub of the matter. It is not alone that municipal street-cleaning departments are often inefficient; littered streets are frequently due to lack of public interest and coöperation. Only carelessness or ignorance would permit the pedestrian to throw the empty paper bag or the banana peel into the nearest gutter, or allow the housemaid to sweep into the street the dust and litter she gathers from the front rooms and the hall and steps. Yet both of these things can be seen hundreds of times a day in every large city.

What is most needed is greater care on the part of the individual. He should have civic pride enough to refrain from throwing newspapers or other rubbish into the streets or leaving it where it will be blown about. When he sweeps his sidewalk, he must remove or destroy the dirt, not merely brush it out of his own way. In other words, he should carry some of his indoor manners with him when he goes outdoors.—*Youth's Companion.*

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VITAL STATISTICS FOR DECEMBER.

Summary.—For December there were reported 1,694 living births; 2,683 deaths, exclusive of stillbirths; and 1,997 marriages. For an estimated State population of 1,882,846 in 1906, the December returns give the following annual rates: Births, 10.8; deaths, 17.1; and marriages, 12.7, per 1,000 inhabitants.

Tuberculosis and pneumonia were the leading causes of death in the month, with heart disease next in order. Typhoid fever, as usual, was the most fatal epidemic disease in the State, though the proportion of all deaths due to this disease was less for December than for November and October.

Causes of Death.—The following table gives the number of deaths due to certain principal causes in December, as well as the proportion from each cause per 1,000 total deaths for both December and November.

Cause of Death.	Deaths: December.	Proportion per 1,000.	
		December.	November.
ALL CAUSES	2,683	1,000.0	1,000.0
Typhoid fever	95	35.4	44.5
Malarial fever	5	1.9	4.6
Smallpox	1	0.4	----
Measles	12	4.5	4.6
Scarlet fever	5	1.9	0.4
Whooping-cough	11	4.1	1.9
Diphtheria and croup	35	13.0	13.2
Influenza	4	1.5	1.9
Other epidemic diseases	11	4.1	3.5
Tuberculosis of lungs	358	133.4	113.4
Tuberculosis of other organs	51	19.0	19.0
Cancer	127	47.3	49.9
Other general diseases	92	34.3	35.6
Meningitis	50	18.6	13.2
Other diseases of nervous system	197	73.4	84.3
Diseases of circulatory system	362	134.9	137.3
Pneumonia and broncho-pneumonia	315	117.4	96.3
Other diseases of respiratory system	94	35.0	27.1
Diarrhea and enteritis, under 2 years	57	21.3	34.8
Diarrhea and enteritis, 2 years and over	19	7.1	9.7
Other diseases of digestive system	118	44.0	40.6
Bright's disease and nephritis	156	58.1	52.6
Childbirth	22	8.2	9.7
Early infancy	67	25.0	36.0
Suicide	45	16.8	11.6
Other violence	196	73.1	78.5
All other causes	178	66.3	75.8

There were 409 deaths, or 15.2 per cent of all reported for the month, from tuberculosis of the lungs and other organs, and the same number from pneumonia and other diseases of the respiratory system. The proportions for tuberculosis and pneumonia were higher for December than for November. Next in order are diseases of the circulatory system, heart disease, etc., causing 362 deaths, or 13.5 per cent.

Typhoid fever caused 95 deaths, or only 3.5 per cent of the total for December, against 4.5 per cent for November, and 4.4 per cent for October. For December there were also reported 35 deaths from diphtheria and croup, 12 from measles, 11 from whooping-cough, 5 each from malarial fever and scarlet fever, and 16 from various other epidemic diseases.

REPORTING TUBERCULOSIS.

Tuberculosis caused the death of 4,183 persons, or 15.5 per cent of all the deaths in the State during the twelve months from July 1, 1905, to July 1, 1906. To be sure, many of them contracted the disease elsewhere, and came here to die—an act they could have performed with equal credit and more comfort at home—but over 28 per cent were natives of the State and as many more had lived here over ten years, so had in all probability contracted the disease here. Many who had lived here less than ten years came in perfect health, and it is safe to say that 65 per cent of all those dying from tuberculosis in California contracted that dread disease in the State. One thousand five hundred in round numbers came here to get the advantages of our climate, the best climate no doubt out of doors, but when confined within four tight walls and filled with the products of gas or coal-oil combustion and the *emanations of diseased* bodies, no better than what they left. In this

good climate, 2,500—think of the number—died in one year from tuberculosis contracted in the State.

There is no doubt many of these contracted the disease from cases coming here without the means for proper care. These infected strangers, living in dark and ill-ventilated rooms, eating at cheap restaurants and expectorating everywhere, will infect more natives than ten times the number who reside in good homes where care is exercised. It is not the number of sick coming to us that is of the most importance, but how and where they live after getting here.

If we are to do anything to stop this terrible mortality we must know where to work, and this can be done only by having cases reported.

The following is of interest as pertaining to this question:

Compulsory Registration and Fumigation in Pulmonary Tuberculosis, the Two most Important of all Preventive Measures.

By GEORGE H. KRESS, M.D., Los Angeles, Cal.

Visiting Physician to the Barlow Sanatorium for Poor Consumptives of Los Angeles; Attending Physician to Helping Station of the Southern California Anti-Tuberculosis League.

Compulsory registration and fumigation, when applied to pulmonary or lung tuberculosis (a disease also widely known by the name of consumption or the great white plague), have reference to the compulsory notification of the city, county, or state health officers, by the attending physicians, of the name and residence of every patient suffering from this widespread disease which comes into the hands of those physicians for treatment, to the end that, on the one hand, the infection of healthy citizens might be prevented, and that, on the other, the patient might be protected from re-infecting himself.

In the system of compulsory registration and fumigation of pulmonary tuberculosis no placard or sign is placed on the house, as is the case in diphtheria or scarlet fever. In these latter diseases the chances of infection by simple contact are much greater than in tuberculosis, tuberculosis being a disease that requires for infection, as a rule, very close and somewhat prolonged contact with an infected person, room, furnishings or clothing, the danger in this chronic disease lying more in the fact that the millions and billions of germs which each consumptive expectorates in a short time so infect the room or furnishings that it is almost impossible for subsequent occupants not to inspire dose after dose of the germs, and if such persons be below par physically the chances of their becoming infected with tuberculosis are very great.

Coming back to the system of compulsory registration, if our lay citizens could only understand that the system of compulsory registration of tuberculous patients (life-saving measures of a scope so great that only those who have studied the tuberculosis problem are in a position to appreciate their value) means not the least hardship, embarrassment, or inconvenience to family or patients; and further, that it means not the smallest iota of publicity, and that, so far as the outer world and neighbors are concerned, the patient stands in the same relation as to-day, except that the opportunity or privilege of infecting his relatives, friends, and fellows, and of re-infecting himself, is denied him, there would be none of this opposition to one of the most beneficent measures in the prevention of the world's great scourge, which we some-

times see manifest itself when this system of compulsory registration and fumigation is advocated.

In speaking of the deaths from pulmonary tuberculosis, due to criminal negligence of proper regulations on our part, we have been tempted to characterize them as murders, for, in the ethical sense, is it not murder when human life is taken by means that we know could easily be prevented? Is it ethically any less a crime to infect an individual and cause his death by slow degrees from disease, and perhaps have him in time infect and cause the death of others near and dear to him (setting in motion an almost endless chain), than to kill him outright with bullet, knife, or other weapon, recognized as such in law? Is a human life not always a human life, and if it be sacred and worthy of protection from one class of weapon and preventable death, should it not also be sacred from all other types of weapon and preventable death?

And the germ or bacillus of tuberculosis is nothing else than a weapon of death, a weapon of death in such constant use that it undoubtedly causes many times more mortality (one out of every ten persons dies of the disease) and certainly a vast deal more of mental pain and physical suffering than all the murderers in the usual sense, on whom the law seeks to expiate such crimes.

It is a fundamental obligation on the part of a State to take steps to protect its citizens from preventable death. If the sputum containing millions and billions of germs of tuberculosis which is spread broadcast in California by our fellow citizens from the East, who come here in search of health—if this germ-containing sputum could be rendered innocuous before it has an opportunity to infect healthy citizens, hundreds of lives would be saved to this commonwealth. The Golden State, because of its climate, draws consumptives to its confines by the hundreds. These consumptives infect rooms and bed clothing and make these places dangerous to subsequent occupants. The poorer the consumptive (almost fifty per cent of our consumptives who come hither from the East are virtually penniless), the meaner and more crowded his boarding-house, and the greater the chance of having his sputum be the cause of infecting his fellows.

When we know that the periodical fumigation of rooms which have harbored consumptives would prevent the larger proportion of these deaths and misery, and when these measures can be instituted without the least hardship or embarrasment to anybody, is it not almost a crime to refrain from bringing such measures into existence?

What, now, do the terms compulsory registration and fumigation comprehend? In a few words, they are methods intended to destroy the bacillus of tuberculosis, *i. e.*, the germ, without the presence of which in his body no person can have tuberculosis, and in destroying these dangerous germs the lives of many citizens would be saved.

If infection can not take place without the germ, then if you kill all the germs there can be none, or at least only a minimum amount of tuberculosis. Now that is what compulsory registration and fumigation aim to do.

The system known by that name aims to give to our health officers the name and residence of every consumptive, so that every such person may be instructed to destroy his sputum (for it is in the sputum or *expectoration* that the germ reaches the outer world), and it is to be *remembered that* the twenty-four-hour sputum of a single consumptive

may contain not only millions, but possibly several billions of the germs.

When such a consumptive person changes his residence or dies, the room is fumigated, so that its next occupant is in no danger of infection from tuberculosis. Hotels, cheap lodging-houses, and second-hand establishments should also be periodically fumigated.

All this is done without publicity, no placard ever being placed on the house, and none but the county or city health officers and their delegated deputies knowing the names of the persons reported as having the disease. If the attending physician certifies that the patient is observing all proper hygienic requirements and is carefully destroying his sputum, and will vouch for the proper fumigation of the rooms according to health office requirements, the health office will never trouble the patient or his family or the owner of the property.

When an ignorant or vicious patient disregards all hygienic requirements, and refuses or is unable to appreciate the importance of destruction of sputum, then if a deputy or nurse from the health department, sent at the request of the attending physician, is unable to make such a criminally ignorant or vicious consumptive do these things, the health officer should then have the power to order such a person sent to a hospital where he can not endanger the lives of others.

Are these measures mere theories? No, for by means of them, in connection with new tenement house laws, the city of New York in less than twenty years was able to reduce its mortality rate from tuberculosis by more than forty per cent and Berlin and other continental cities, as well as a half hundred cities in our own land, have followed the lead of New York and likewise have inaugurated these measures.

Owing to the influx of Eastern consumptives into not only our large cities, but the smaller towns and country districts of California, there is an especial need of a State law making the registration of all persons suffering from tuberculosis, and the periodical fumigation of rooms, compulsory.

In brief, these measures are logically indicated because of the following facts:

(1) Tuberculosis or consumption can not exist without the presence of its special germ.

(2) For all practical purposes, the germ that is present in an infected person has come from the dried sputum of some previously infected person.

(3) Therefore, if you can destroy all the sputum, you can kill all the germs and you have no newly infected persons.

(4) To destroy the sputum containing these germs you must first know where the persons live who produce this kind of sputum.

(5) Therefore, it becomes necessary for physicians to report to the city, county, or state health officers the names and residences of all tuberculous patients.

(6) Steps are then taken by physicians and health officers (with the greatest possible privacy) to instruct the patient how to destroy his sputum.

(7) And when the patient changes his residence or dies the rooms in which he lived are fumigated (without publicity), so that subsequent occupants are in no danger from infection.

(8) Provision is also made that consumptives living in unhygienic *surroundings be instructed* as to destruction of sputum, and when they

ignorantly or viciously refuse to do this, that the health officer have the power to have them removed to a hospital, where their carelessness would be so safeguarded as to prevent them from being a menace to the lives of others.

(9) In conclusion, the measures are humane, considerate, and logical attempts to destroy the germ that causes the disease, so that lives that are now needlessly sacrificed by hundreds and thousands may be saved.

(10) For be it remembered that infection in many, many cases means death, and death from preventable sources takes on a criminal phase—aye, in some cases, if not legally, then ethically, becomes related to murder.

THE STATE HYGIENIC LABORATORY AND DIPHTHERIA IN BERKELEY.

The existence of an epidemic of diphtheria in Berkeley has offered an opportunity for coöperation between the State Hygienic Laboratory and the local health authorities in combating diphtheria. The work is far from ended, but its progress is shown in the following letter sent to the physicians of Berkeley:

Dr. —— ——:

DEAR DOCTOR: The unusual prevalence of diphtheria in Berkeley during the past four months has called for the most energetic measures for its suppression. Most of the cases have occurred in the Lincoln School in South Berkeley. Rather than close the school, we have tried the method which was so successfully used by the Minnesota State Board of Health for exterminating diphtheria epidemics.

On December 19, 1906, a culture was taken from the throat of every child then in attendance at the school, in all about five hundred. On examining these cultures we found diphtheria bacilli to be present in twenty-five cases, or 5 per cent of the children in the school. Subsequent examinations, of children returning to school after short absences, revealed twenty more, making a total of forty-five. Of these, nine were traceable to previously reported cases of diphtheria. In these cases the children had either been sick themselves and sent back to the school before the germs were gone from their throats, or they were in the family of convalescent cases of diphtheria. Five more of them had, at the time, mild symptoms of diphtheria, so mild that it had not been recognized by the parents that the child was really sick, or that it was anything serious. In two cases, a history of a previous very mild, unrecognized, or at least unreported diphtheria could be traced. The rest were "germ cases," in which the germs were present in the throats, but there were no clinical manifestations, and no history of previous symptoms. The work of the Massachusetts Association of Boards of Health has shown that these "germ cases" are very common among persons exposed to diphtheria (6 per cent to 50 per cent) and that while all of them are not necessarily dangerous, in at least 17 per cent of them the germs are virulent and may cause trouble later in that individual or on transmission into another. All of the children who had germs in their throats were excluded from the school, and were not allowed to return until two successive cultures, at an interval of at least one week, had shown the germs to be absent from the throat.

This procedure will be repeated at intervals until the diphtheria is stamped out of the school. In each case in which germs are present we will advise that a physician be consulted. Experience has shown that where the throat and nose are irrigated and the throat swabbed thoroughly with a warm, mild alkaline solution the mucous membranes are freed from the germs in a very short time. The bacteria usually persist for about four weeks after the disappearance of the clinical symptoms.

Our work has shown that most of the trouble in the Lincoln School is arising from cases so mild that they are not recognized as diphtheria. You will aid us very much in our endeavors to stop the epidemic, if you will submit to us a culture from every sore throat that comes under your observation, however far it may seem from diphtheria. The outfits for making these cultures can be obtained from the health office, corner of Shattuck avenue and Alston way, or from the State Hygienic Laboratory at the University of California, or from Burton & Rathke, 3276 Adeline street. They may be returned by mail or messenger.

After a case of diphtheria has recovered, when you consider the patient ready for release from quarantine, you are requested to take another culture, and send it to the laboratory. Since one culture, owing to the use of antiseptics, may give erroneous results, we will later send our representative for a second culture. Quarantine will be removed only when two successive cultures, at a sufficient interval, have demonstrated *the absence of* the germs.

We will greatly appreciate any assistance that you will give in this matter, by the *liberal use of* cultures, in determining the true nature of obscure cases, and by the *prompt reporting* of any case that is undoubtedly diphtheria.

Yours sincerely,

G. F. REINHARDT, Health Officer.

The work done so far has led to the conclusion that mere exclusion from school without quarantine does not insure the necessary isolation of the germ cases. Consequently, the following letter will be sent to the parents of children harboring diphtheria bacilli:

Mrs. —— ——,

DEAR MADAM: An examination has been made of the throat of —— ——, and it has been found that there are diphtheria germs present. This does not necessarily mean that --he will have diphtheria, but it does mean that --he has been exposed to the disease and may give it to other children. Although the germs may never show in the throat except by bacteriological examination, yet --he is a menace to other children.

Your children are therefore quarantined. This means that they are not to be allowed to leave, nor are other children to enter, the premises while this quarantine lasts. The quarantine will be maintained until the throats of your children are free from the germs. They will be visited from time to time at your home to determine when this is the case, and notice will be sent you when the quarantine may be removed. Its duration will undoubtedly be shortened if you will consult a physician and have proper treatment.

Diphtheria is spread by children using in common such things as cups, spoons, pencils, and the like; sucking the same toys; coughing in each other's faces; kissing; or by any of the various ways in which the germs in the throat and saliva may be transferred.

Very truly,

G. R. REINHARDT,
Health Officer.

It is quite too early in the work to speak of results, but certain lessons may be drawn.

The termination of quarantine in diphtheria ought always to be made dependent upon a bacteriological examination. The widespread existence of diphtheria in the form of a mild inflammation without the presence of a membrane is not recognized by the average physician in his practice. A bacteriological examination alone can make it sure. During a diphtheria epidemic any sore throat in child or adult should justify making such an examination.

The fact that the laboratory is conveniently near to the epidemic has greatly facilitated the work; still there is no reason why the laboratory should not do similar work for other towns. Cultures should be taken by local health authorities and sent in by express with only a slight loss of time. In Minnesota, where the laboratory staff is adequate, a representative of the laboratory goes to the epidemic equipped to do the work. This can not be done here at present, but the laboratory is open for the use of all health officers, and if they will avail themselves of it they will be able to take a positive stand early where otherwise they would be in doubt.

PURE FOOD.

The National Pure Food Law, which went into effect January 1, 1907, has only a limited power to prevent the use of impure and adulterated food in this or any other state, as it simply prohibits the importation of impure food into the State. All that was here at the time the law took effect and all that can be manufactured within the State is not reached by that law. Consumers must not think that because of this law they will not be served with adulterated foods and drugs, for they will be, and possibly for a time to a greater extent, unless they watch out for themselves.

Foods brought in now must come up to the standard of purity, but that already here or manufactured within the State may be grossly adulterated. The only way to meet this is by a California Pure Food and Drug Law. It is encouraging to see that the Legislature which is now in session *has taken* the matter up seriously, and has before it a *most excellent Pure Food* and Drug bill. This bill is directly in accord

with the national law, using the same definitions and having practically the same requirements.

As the Governor has always stood for pure food there are high hopes that we will soon, in a great degree, be relieved of that disgrace to our civilization, impure food. The slow poisoning by foods preserved with dangerous chemicals, together with the impure and adulterated stuff that is often sold, is responsible for innumerable deaths.

We can not, as a State, afford for any consideration to become the dumping-ground for other states, nor allow our manufacturers to serve the people with anything but what is pure. Not only the health and life of our children are at stake, but our reputation as a State. Let it once be known that California products are pure and wholesome, and exactly what they are represented to be, and an impetus will be given to trade that will far more than offset any damage that can be done.

TYPHOID FEVER.

There has been a material falling off in the number of deaths from typhoid fever during the past month, and also in the number of cases reported. This is due in the cities to the general cleaning up and in the suppression of flies, and in the country to the rainfall which has cleaned out the streams and reservoirs, and diluted the water, which, in many places, is polluted, thus lessening the chances of infection.

Typhoid fever should be a rare disease, instead of standing sixth or seventh in the list of causes. It is a filth disease, the germs being carried only in the discharges from the body, and we have simply to destroy them. This is impossible in all cases, for they linger long after the patient is out from under the care of the doctor; but much can be done in that way. Flies, water, and personal contact are the chief means of distribution, and these can be largely controlled.

"*The Life of Germs in Water.*—It is well-known that water is a carrier of infection, and indeed that pure spring water may carry organisms of disease. The question as to how long the organisms of disease may live and retain their virulence has been the subject of considerable controversy. The general tendencies of opinions hitherto made have been that though they may live for a time in clean water, they will multiply little, if at all, and tend to die out rapidly. The short life of disease-producing bacteria in water is supposed to be due to unfavorable environments, such as the competition of hardier water-bacteria and the absence of proper nutriment. Recently these conclusions have been challenged. It is stated that water is an excellent medium for many pathogenic micro-organisms, and that in the long run they survive the supposedly more hardy water-bacteria. It has also been stated that disease organisms live longer in pure than in dirty water; therefore, pure drinking water, once infected, is more dangerous than foul water. Some experimenters have demonstrated that typhoid bacillus would live in ordinary drinking water for over a year. Sterilized water has been demonstrated to be a good culture medium for the anthrax bacillus, as well as for the typhoid bacillus. The practical significance of these demonstrations is that a community which has suffered from an epidemic of typhoid fever, due to infection of the water supply, can not rely *upon the short life* of bacteria to free it from danger, and these experiments *may also* explain recurrences of epidemics of typhoid fever after *supposedly* sanitary reforms of water supplies."—Exchange.

CALIFORNIA STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*..... University of California, Berkeley

VITAL STATISTICS FOR JANUARY.

Summary.—For January there were reported 1,771 living births; 2,475 deaths, exclusive of stillbirths; and 1,754 marriages. Estimated by the Census Bureau method with slight modifications, the population of California in 1907 is 2,001,193. For this population the preceding figures give annual rates per 1,000 inhabitants, as follows: Births, 10.4; deaths, 14.6; and marriages, 10.3.

Marriages are reported only by counties, the numbers being highest for Los Angeles, 380; San Francisco, 310; and Alameda, 243. There were also over 50 marriages in each of the following counties: Fresno, Marin, Orange, Sacramento, San Diego, and Santa Clara.

Births are reported separately for cities having freeholders' charters, the totals being greatest for Los Angeles, 325; San Francisco, 313; and Oakland, 163. There were over 20 births in each of the following cities as well: Berkeley, Fresno, Pasadena, Sacramento, San Diego, and San José.

Deaths are shown for all incorporated cities, whether with charters or not, the numbers being highest for San Francisco, 593; Los Angeles, 383; and Oakland, 203. There were also 20 or more deaths in each of the following cities: Alameda, Berkeley, Fresno, Pasadena, Redlands, Riverside, Sacramento, San Bernardino, San Diego, San José, Santa Cruz, Santa Rosa, and Stockton.

The deaths were distributed by geographic divisions, as follows: Northern California—coast counties, 130; interior counties, 102; total, 232. Central California—San Francisco, 593; other bay counties, 365; coast counties, 171; interior counties, 375; total, 1,504. Southern California—Los Angeles, 511; other counties, 228; total, 739. State total, 2,475.

Causes of Death.—There were 407 deaths, or 15.6 per cent of all reported for January, from pneumonia and other diseases of the respiratory system, and 390, or 15.8 per cent, from tuberculosis of the lungs

and other organs. The proportions for pneumonia and tuberculosis were each higher than in the preceding month. Third in order, as before, are diseases of the circulatory system, heart disease, etc., causing 352 deaths, or 14.2 per cent of all.

Typhoid fever, as usual, was the most fatal epidemic disease, causing 46 deaths against 20 for diphtheria and croup, 15 for measles, 13 for influenza, and 25 for various other epidemic diseases. However, the per cent of all deaths due to typhoid fever was only 1.9 for January, against 3.5 for December, 4.5 for November, and 4.4 for October.

Detailed figures on causes of death in California appear in the table below, which shows the number of deaths due to certain principal causes in January, as well as the proportion from each cause per 1,000 total deaths for both January and December:

Cause of Death.	Deaths: January, 1907.	Proportion per 1,000.	
		January, 1907.	December, 1906.
ALL CAUSES	2,475	1,000.0	1,000.0
Typhoid fever	46	18.6	35.4
Malarial fever	2	0.8	1.9
Smallpox			0.4
Measles	15	6.1	4.5
Scarlet fever	7	2.8	1.9
Whooping-cough	5	2.0	4.1
Diphtheria and croup	20	8.1	13.0
Influenza	13	5.3	1.5
Other epidemic diseases	11	4.4	4.1
Tuberculosis of lungs	353	142.6	133.4
Tuberculosis of other organs	37	15.0	19.0
Cancer	116	46.9	47.3
Other general diseases	95	38.4	34.3
Meningitis	52	21.0	18.6
Other diseases of nervous system	200	80.8	73.4
Diseases of circulatory system	352	142.2	134.9
Pneumonia and broncho-pneumonia	293	118.4	117.4
Other diseases of respiratory system	114	46.1	35.0
Diarrhea and enteritis, under 2 years	34	13.7	21.3
Diarrhea and enteritis, 2 years and over	15	6.1	7.1
Other diseases of digestive system	101	40.8	44.0
Bright's disease and nephritis	153	61.8	58.1
Childbirth	12	4.8	8.2
Early infancy	73	29.5	25.0
Suicide	43	17.4	16.8
Other violence	158	63.8	73.1
All other causes	155	62.6	66.3

CALIFORNIA PUBLIC HEALTH ASSOCIATION.

The annual meeting of the California Public Health Association will be held at Del Monte, Monterey, Monday, April 15th, at 2:00 P. M., the day preceding the meeting of the State Medical Society. "Child's Work in the Public Schools" will be the main question for discussion. Other subjects will be brought out by the "question box," and plenty of time given for discussion. The effect of the public school, either for good or bad, is a vital question to the State. It is not everything that the child becomes greatly learned. Education is good, but if secured at the expense of health it is a poor bargain. It is entirely possible to get the one and retain the other, but are we doing it at present? If *you think not, come* to the meeting and tell us about it. If you think *we are, still come* and show those who think otherwise the error of their *views. It is a* question of such broad interest and one on which any

one can talk, as it is not scientific, that the meeting should be well attended.

There will be a paper on "Formation of Springs and a Stretch of the Underground Waters," which will be of exceptional interest. Disease is often water-borne, and the idea is prevalent that all water from the earth is pure. This phase of the question will be discussed.

The California Public Health Association doors are open to all. No dues are charged, and every one who is interested in the public health is welcome. The program will be published next month.

DR. J. F. KENNEDY.

It is with regret we note the retirement of Dr. J. F. Kennedy from the position of Secretary of the Iowa State Board of Health, and editor of the Iowa Health Bulletin. He had held the secretaryship for twenty-two years, and had edited the Bulletin since its start, twenty years ago. In keeping him in these responsible positions so long the State exercised good judgment, and in return he honored and greatly aided the State. Scholarly, earnest and able, and always a gentleman, the California Bulletin feels a sense of personal loss in his retirement.

While Dr. Kennedy may not be, as in the past, one of the active leaders in the cause of sanitation, we are sure that his interest in the cause will not lessen, and that not only his State, but the others, may receive occasional feasts from his storehouse of knowledge.

PURE FOOD.

It seems probable that the Legislature which is now in session will enact a Pure Food and also a Pure Drug law. Indeed, these bills have already passed the Senate. The features of the bills are exactly those of the National law, the definitions, requirements, and standards being copied from it. While the National bill may not be all that could be wished, it is a far step in advance, and by following it we will have the advantage, in the enforcement of the State law, of decisions rendered in the National.

It would be a great misfortune to the State if the Legislature should not enact some stringent laws on these subjects. The National law deals only with interstate commerce, and leaves the State to take care of its own food affairs. It simply says no other State shall send you adulterated or impure food. Shall we, as a State, have less interest in ourselves than the United States has in us? We hope not.

The State law should be, as the bills before the Legislature are, as near as possible in conformity with National law. Two years' experience will show defects, and it will be easy to remedy them then. If the Legislature should adjourn without action, the people of the State will be served more than in the past with a poor quality of food, oftentimes preserved with injurious chemicals, and sometimes with a very material decrease in weight or measure, and with drugs that are responsible in no small degree for the increased population of our State institutions. The members of the Legislature owe it to their constituents to enact these laws which will protect them from the grasping avarice of unprincipled manufacturers.

DIPHTHERIA.

"Lodi (San Joaquin County), February 12.—The case of the Edwards *children, living in West* Lodi, and supposed by some physicians to have *diphtheria, is being* seriously considered. The Edwards children, five

in number, were taken ill last week, and a few days ago one was buried privately, after the arrival of the father from Goldfield, Nevada, where he has been engaged in mining. Four physicians are in attendance on the children, two declaring the ailment to be a bad form of diphtheria, while the other two claim it is not. The city health officer has been notified, and even he cannot agree that it is that dreaded disease. Other physicians have been called into consultation, and they agree that it is diphtheria. The case is a very serious one, on account of the disagreement of the physicians. The house is not quarantined, and if it should be diphtheria the town has a good chance for an epidemic. It is thought that the public schools will be closed."

The above is taken from a daily paper and is supposed to be approximately true. It is quoted to demonstrate the use to which the State Hygienic Laboratory can and should be put. Lodi is within one hundred and ten miles of the laboratory, with quick and frequent connection, and a swab from the child's throat could be in the laboratory in a few hours. Taken in the morning, it could be sent to the laboratory, a culture made and a reply could be returned the next, with no expense to the patient or health officer except postage and the telegram. If the reply was by mail, the postage on the package would be the only expense. Such an examination would clear up a doubtful diagnosis, and should always be made when that condition exists.

It is often impossible for a physician to be sure of a diagnosis from the appearance of the throat, or from general symptoms, but science has come to his relief in the bacterial examination, and the State has established a laboratory for just this purpose.

An early diagnosis means everything in diphtheria, for the use of plenty of antitoxin in the early stage of the disease will save nearly all, if not all, cases. Every health officer should write to Dr. A. R. Ward, Director of the State Hygienic Laboratory, Berkeley, and secure a supply of mailing cases and directions. They are sent free, and if properly used will lessen in a great degree the death-rate of diphtheria.

In the last Bulletin we published a report of the work which was being done by the State Laboratory in connection with diphtheria in Berkeley. That work has gone steadily on, not, however, without some opposition from those whose children were being saved, and now the disease is practically stamped out. Two thousand five hundred separate examinations have been made, but no one can tell the number of lives saved. Some parents certainly have reason to offer thanks for the salvation of their little ones.

The following report from Dr. A. R. Ward, Director of the Laboratory, is of interest:

Diphtheria in Berkeley.—The work on diphtheria in the Lincoln School in Berkeley, as reported in the last issue of the Bulletin, has been continued vigorously. On January 10th cultures were made from the throat and nose of all of the pupils in the school—some five hundred and seventy-five. Twelve per cent of them showed diphtheria bacilli. Each of these children, together with all the other school children in the family, were excluded from school and placed under quarantine.

A corps of student inspectors has made it possible to take cultures *from each family* once a week. When a negative report has been *obtained twice in* succession from the person positive originally, and

once from the other children and the mother, quarantine has been terminated and a permit to attend school has been issued. Thirty-eight families have been released and thirty-seven remain under quarantine. Of these thirty-seven families, fourteen have refused to allow examinations, leaving twenty-three families under observation.

Two cases of diptheria have been reported among those excluded after the examination of January 10th. One of these cases passed the school examination successfully two days before the attack, but had been excluded because a brother had shown diphtheria bacilli at the school.

With the exception of the two cases among those excluded on January 10th, no diphtheria has occurred among the children attending the school in question up to the present date, February 11th. During the same period, five cases only of diphtheria have been reported from families in Berkeley having no relation to the school.

The relation of the preventive measures enforced at the school, to the prevalence of diphtheria among the children of the schools and others, is presented in the table below:

Period.	Cases in Families Connected with School.	Cases in Families Not Connected with School.
October 1 to 31	5	1
November 1 to 19	9	1
November 19th. First school examination.		
November 19 to 30	4	0
December 1 to 31	12	2
January 1 to 10	6	0
January 10th. Second school examination.		
January 10 to 31	2*	0
February 1 to 11	0	5

It will be seen that the first examination of the school produced practically no effect as compared with the second. It should be noted that the first examination, in which the culture was taken from the throat only, showed but five per cent positive and no quarantine was placed upon those excluded. The second time, cultures were made from both nostrils as well as the tonsils, and all those excluded from school were quarantined.

DANGERS OF SWEAT-SHOPS AND TENEMENT HOUSES.

"In England, in the early nineteenth century, a jet of poison spurted up out of a dingy Whitechapel sweat-shop into the splendid drawing-rooms of St. James. Heavenly powers! Here was something to astound a nation. Disease and poverty were nothing to our bewigged and gartered parliaments, so long as they stayed pent up in the corrals and warrens of the disinherited poor. But when disease, fathered by poverty, showed its horrible face on polished floors, amazement stared, alarum sounded, England was on guard.

"What caused this cry at the gates, this rush to rescue? The daughter of Sir Robert Peel was mysteriously stricken with typhus. The infection was traced to a stylish riding-habit ordered and fitted at a correct Regent Street shop, but finished in the tenement of a starving tailor with two children lying ill of fever. When their shivering spells were on, the destitute tailor had flung the heavy robe over his fever-stricken little ones. It was not the first time that the plague of the toiling poor invaded the sanctuary of the mighty. It was not the last time. *Hundreds of* our own epidemics, emptying our schools and deso-

* *These had both been* excluded from the school on January 10.

lating our homes, are due to the desperate conditions under which many of our workers are forced to do their work. And of the nearly two hundred million dollars' worth of garments manufactured yearly in New York City, nine-tenths goes to the wardrobes of our citizens, wholly or partly, by the weary and pestilent way of the sweat-shop."

The above burning words from Edwin Markham's article on "The Sweat-Shop Inferno" as clearly points to the danger of concealed diseases as the wretched condition of the "sweat-shops." That disease is spread from clothes infected in the process of manufacture there is little doubt, for the conditions are all favorable to such results. Physicians who have practiced in the tenement-house districts have many times seen the beds in which were children sick with contagious disease covered with garments being finished for the market.

It requires no great stretch of imagination to see a garment which is being made by a man or woman in the last stages of consumption become grossly infected with the secretions from the patient's diseased lungs.

Wouldn't it be cheaper to support that sick person at a public sanitarium than to let him infect the clothing which will possibly, yes probably, infect and kill some useful citizen?

This is looking from a mercenary point of view, but we have to look from all sides.

It is no fancy picture that Markham drew, and the same conditions pertain now as when Sir Robert Peel's daughter was stricken with typhus. You that are well fed, well housed, and enjoy all the comforts of life must not think you are not exposed to the contaminating conditions of sweat-shop and tenement house. They reach you constantly in the shape of physical as well as moral disease, and will continue to claim you and yours as long as they are allowed to exist.

* * * * *

It is perhaps difficult for those who have not carefully studied the matter to realize the danger from the dust swept into the streets from houses, halls, hospitals, stores, and saloons. It is hardly possible to walk a few blocks along a city street any pleasant morning without encountering a storm of dust raised by some energetic servant beating a rug or sweeping the dirt from the house out across the sidewalk into the street. This dust may, and oftentimes does, contain the dried sputum of consumptives or diphtheria patients, or the discharge from a syphilitic sore mouth. Filth indescribable is represented in it, and the combination without selection is breathed into the lungs. Is it any wonder we get sick!

No dirt should be allowed to be swept from the house, but it should be taken up and burned. The time is not far off, we hope, when houses will be cleaned by the suction method. It will then be possible to unscrew the electric light bulb and screw on the cleaning machine and quickly remove all dust. The broom and feather duster will then be doomed as household utensils.

That time hasn't yet arrived, and we are dying from consumption at *the rate of four* hundred per month. One in every seven of us are *doomed to travel* that road unless we think best to close it up. We can *not do it all at once*, but we can begin.

There is among many people, and even among some physicians, a more or less strong opposition to the idea of reporting cases. It was the same in New York at first, but now it has practically the unanimous support of the physicians and laity, and the death-rate from consumption is decreasing, due alone to the efforts of the health authorities following up with honest, effective work the cases reported to them.

There is no doubt that notification is the most important unit in the struggle with tuberculosis. There is much good in saving people already infected, but more in keeping others from being infected. The disease is communicable both directly from those infected to the well, and indirectly by means of things, and especially rooms. To check the spread of the disease the means of communication must be stopped, but how can a health officer do his duty in protecting the health of the community unless he knows *where* to work?

The object of notification is not to placard the room or house, nor to interfere with treatment, nor to make public the patient's condition, but to see in a quiet, non-public way that proper instructions are given the patient so that he may not be a danger to himself or others, and that after his removal from the rooms they can be disinfected. This would save many lives, and no hardship would be imposed on any one.

There is hardly a person but what has seen some one suffering from consumption spitting upon the floor of their room, or possibly upon the walls. This sputum, laden with the germs of the disease, dries and becomes dust. It settles on the walls, in the cracks, and everywhere, ready to infect the next person who unfortunately occupies the room. The disease is no doubt frequently spread by this means—a source of trouble that could easily be prevented by thorough cleaning and fumigation, but the know *where* is as necessary as the know *how*.

MOSQUITOES.

The time of year is at hand when the mosquito, lean, hungry, and energetic, begins work. They will be few at first, but will multiply with great rapidity, and spread discomfort and disease; that is, if allowed to do so.

It is comparatively easy to destroy them entirely, and be relieved of one of the great discomforts of life. Every one should know and remember that the mosquito breeds *only* in water, never in grass and brush. They seek protection in these, but breed always in water. The wigglers seen in stagnant water are the mosquitoes in their early or larval form, and it is in that stage of life that it is easy to destroy them. If every one would see that no stagnant pools existed around their place; that no pail, tub, can, or any vessel is allowed to stand with water in it; that their cesspools and vaults are closely covered, or if exposed to the outside, that coal oil is frequently poured on the surface of the water; that watering-troughs are emptied once a week; that water tanks are tightly covered either with boards or a fine screen; in short, if all breeding places are protected or destroyed, there will be no mosquitoes. In places it is impracticable to drain all pools, but they can be easily covered with coal oil, which will effectually destroy the pests.

Many committees are taking up the question, and have arranged to destroy the mosquitoes which in the past have been such a menace to *health and comfort.* In this work the entomological department of the

State University has rendered efficient aid. No town or city should be infested with this pest, and ordinances should be passed and enforced requiring that conditions should be such on each person's property that they could not breed. This is done in many places, much to the comfort and health of the community.

BAR TO SANITARY PROGRESS.

"Prejudice, apathy, ignorance, selfishness, and vested interests still exist as bars to sanitary progress as in the days of old, and they clog the wheels alike of legislation and administration. We possess the knowledge of how to reduce speedily the sum of infantile mortality, of enteric fever, of smallpox, of puerperal fever, of consumption and of the diseases due to alcoholism, and to a less degree the mortality of scarlet fever, diphtheria, measles, and whooping-cough, yet existing social conditions make progress slow and difficult. Dwellings are still ill-ventilated, dirty, and overcrowded, public and domestic water supplies are still polluted. Food is still adulterated, chimneys still vomit black smoke and chemical fumes, sanitary work is still badly executed, local authorities are still indifferent, employés still exact labor under conditions which are disastrous to the worker's health, and individuals are still careless or ignorant of the simple laws of health passed in the days of Moses. The solution of many public health problems depends upon the solution of problems which are social and political: the magnitude of the social and political problems to be solved cannot be exaggerated. Problems of public health, moreover, change with altered circumstances and new ones are constantly evolving. Many of the old ones are becoming more complex year by year, and some are so dependent upon a high ethical level among the general public for their complete solution, that only the millennium can be expected to see them solved. The public health worker can never hope for a complete realization of his schemes and ambition, and to his labors there can be no end. But his reward is the satisfaction of witnessing, almost daily, beneficent results from his work, and it is this that stimulates and gives him zest."—*Exchange.*

IT IS NOT UNWORTHY.

If one has failed to reach the end he sought,
If out of effort no great good is wrought,
It is not failure, if the object be
The betterment of man; for all that he
Has done and suffered is but gain
To those who follow seeking to attain
The end he sought. His efforts they
Will find are guideposts on the way
To that accomplishment which he,
For some wise purpose, could not be
The factor in. There is a need
Of unsuccessful effort; 'tis the seed
Whose mission is to lie beneath
The soil that grows the laurel wreath,
And he is not unworthy who
Falls struggling manfully to do
What must be done, in dire distress,
That others may obtain success.

Wm. J. Lampton, in "Success."

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE BOARD OF HEALTH.

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STATE BUREAU OF VITAL STATISTICS.

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STATE HYGIENIC LABORATORY.

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NOTICE TO CORONERS.

Definite Statements of Causes of Death.— The attention of coroners is directed to the requirement of section 6 of the law for the registration of deaths that: "Causes of death which may be the result of either disease or violence shall be carefully defined; and, if from violence, its nature shall be stated, and whether accidental, suicidal, or homicidal." Deaths from violence should always state the character, as accidental, suicidal, or homicidal, in addition to the means of death. "Accidental drowning," "Gunshot wound (suicide)," and "Poisoned by arsenic (murder)," are examples of complete returns.

In all cases of accidental injuries causing death, the nature of the accident should be definitely stated, as, "Accidental gunshot wounds," "Injuries by machinery," "Injuries in mines and quarries," "Railroad or street car accidents or injuries," "Injuries by horses or other animals," "Automobile accidents," etc.

Furthermore, when under section 7 of the death registration law coroners investigate deaths occurring without medical attendance and not resulting from violence, they must to properly comply with the law investigate each case sufficiently to determine some specific disease as the cause of death. The return "natural causes" is worthless for statistical purposes, nor is the term "heart failure" any better, since the heart always "fails" before death from any cause. In investigating any death not from violence, coroners must invariably certify to some specific disease as the cause of death, as tuberculosis, pneumonia, heart disease, Bright's disease, apoplexy, etc.

The fact that California has the honor of being included by the Federal Census Bureau among the 16 registration states makes it very important that causes of death be stated definitely on all our certificates. The coöperation of coroners is therefore sought to the end that in all cases investigated by them the cause of death will be given with proper definiteness.

MODIFICATIONS OF REGISTRATION LAW.

Chapters 92 and 236 of the Statutes of 1907 make certain modifications of the law for the registration of vital statistics first enacted in 1905. The changes meet the difficulties encountered in the operation of the law during the past two years and serve to make the law as it now stands less rigid in operation than before and also more uniform in minor details.

Temporary Removal of Body.—The rigidity of the law is lessened especially by amendments to sections 4 and 10 of the law for the registration of deaths. Section 4 now provides that for the purpose of being prepared for burial or shipment a body may be removed without formal permission from the registration district where the death occurred, to another registration district in the same county, or to a contiguous registration district in a different county. Thus, without a formal permit, a body may be removed temporarily from a residence in the rural portion of a county or in a separately incorporated suburb to an undertaker's establishment in a city where proper facilities are available for preparing the body for burial or shipment. Of course, before making the final burial or shipment, the undertaker must, as in the past, first secure a permit for the interment or removal of the body from the registrar of the registration district where the death occurred.

Permit for Burial in Contiguous District.—Section 10 of the death registration law, as amended, authorizes the registrar of the district where a death occurs to issue a burial permit, which is legal authority for an interment not only in the district where the death occurred but also in a contiguous registration district in the same or an adjoining county. Thus, the registrar of deaths in a city where no burials take place may now issue a burial permit authorizing an interment (or cremation) at a cemetery in a contiguous registration district, as in a neighboring city, in the rural portion of the same county, or even in a different but adjoining county. The formality of issuing a removal permit and of attaching to it a complete copy of the certificate of death is now required only in case the interment is to be made in some registration district not contiguous to that in which the death occurred, as, for instance, where a body is to be shipped by any transportation company or common carrier for interment at a distant point in California or at some place in another State.

Time for Reports—Local Records—Numbering Certificates—Supplying Blanks.—Uniformity in details is secured by the amendment of sections 3 and 9 of the death registration law, so that certificates of deaths or reports of no deaths must now be transmitted to the State Registrar on or before the fifth day of each month, the fifth day being the date heretofore set for the transmittal of certificates of births and marriages. By the amendment of section 3078 of the Political Code the local record of births and marriages, as of deaths in the past, is required to be kept upon a form identical with the original certificate. Similarly, the local registrar must begin new numbers each calendar year for birth and marriage certificates, as for death certificates, and must also sign his name as registrar in attest of the date of filing in his office in all cases. Section 9 of the death registration law, as amended, specifically requires the board of supervisors of the county to supply local registrars with *blank forms of death* certificates, as well as of blank birth and marriage *certificates as specifically* required before.

Fund for Fees—Subregistrars' Compensation.—By the amendment of section 14 of the death registration law it is definitely provided that a county recorder's fees for registering deaths in the unincorporated portion of a county shall be paid out of the funds of the county, just as the fees for registering births and marriages are expressly payable out of the county funds. Provision is also made for the compensation of subregistrars, who are now entitled to be paid the sum of not exceeding fifteen cents for each death certificate properly and completely registered and filed with the local registrar before the fifth day of the month. All amounts payable to subregistrars shall be paid to them by the local registrars appointing them, from the amounts received by the local registrars from the funds of the county.

Affidavits of Correction.—Section 3083 of the Political Code and section 13 of the death registration law, as amended, simplify the procedure of correcting errors in certificates of births, marriages, or deaths by providing that the change necessary to make the record correct may be made upon authority of the affidavit under oath of the person asserting the fact of an error, to be supported by the affidavit of one other credible person having knowledge of the facts.

VITAL STATISTICS FOR FEBRUARY.

Summary.—For February there were reported 1,779 living births; 2,310 deaths, exclusive of stillbirths, and 1,607 marriages. For an estimated State population of 2,001,193 in 1907, these figures give annual rates per 1,000 inhabitants, as follows: Births, 11.6; deaths, 15.0, and marriages, 10.5. The corresponding rates for January were, respectively, 10.4, 14.6, and 10.3.

The number of marriages was highest for San Francisco, 362, and next for Los Angeles county, 352. The counties next in order were: Alameda, 197; Santa Clara, 58; Sacramento, 54; and Orange, 50.

The birth total was greatest for San Francisco, 377, and next for Los Angeles city, 359. The freeholders' charter cities with the next highest totals were: Oakland, 129; Sacramento, 45; Fresno, 35; Pasadena, 32; San José, 28; Berkeley, 27; and Stockton, 21.

The death list was greatest for San Francisco, 553, followed by Los Angeles city, 356, and Oakland, 145. The cities next in order were: San Diego, 57; Sacramento, 52; Stockton, 40; Berkeley, 39; Alameda, 31; Pasadena, 28; San Bernardino, 25; San José, 21; and Fresno, 20.

It may be noted that the births reported exceeded the deaths in the cities of Los Angeles, Pasadena, San José, and Fresno. If physicians were as sure to register births as undertakers have to be to register deaths, or even if physicians in all parts of California attended to the registration of births as well as they do in some cities, the State total of births would doubtless equal or exceed the aggregate number of deaths.

The deaths reported for February were distributed by geographic divisions, as follows: Northern California—coast counties, 105; interior counties, 135; total, 240. Central California—San Francisco, 553; other bay counties, 344; coast counties, 137; interior counties, 317; total, 1,351. Southern California—Los Angeles, 508; other counties, 211; total, 719. State total, 2,310.

Causes of Death.—There were 386 deaths, or 16.6 per cent of all reported for February, from tuberculosis of the lungs and other organs, *and 376, or 16.3 per cent,* from pneumonia and other diseases of the

respiratory system. In January there were a few more deaths from pneumonia, etc., than from all forms of tuberculosis. Third in order, as usual, are diseases of the circulatory system, heart disease, etc., causing 306 deaths in February, or 13.3 per cent.

Typhoid fever, as before, was the most fatal epidemic disease, causing 30 deaths, against 20 for diphtheria and croup, 14 for measles, 13 for whooping-cough, 12 for influenza, and 14 for various other epidemic diseases. However, the per cent of all deaths due to typhoid fever was only 1.3 for February, against 1.9 for January, 3.5 for December, and over 4.0 for November and October.

Detailed figures on causes of deaths in California appear in the table below, which shows the number of deaths due to certain principal causes for February, as well as the proportion from each cause per 1,000 total deaths for both February and January.

Cause of Death.	Deaths: February, 1907.	Proportion per 1,000.	
		February, 1907.	January, 1907.
ALL CAUSES	2,310	1,000.0	1,000.0
Typhoid fever	30	13.0	18.6
Malarial fever	4	1.7	0.8
Smallpox	1	0.4	
Measles	14	6.1	6.1
Scarlet fever	4	1.7	2.8
Whooping-cough	13	5.6	2.0
Diphtheria and croup	20	8.7	8.1
Influenza	12	5.2	5.3
Other epidemic diseases	5	2.2	4.4
Tuberculosis of lungs	341	147.6	142.6
Tuberculosis of other organs	43	18.6	15.0
Cancer	102	44.2	46.9
Other general diseases	86	37.2	38.4
Meningitis	41	17.7	21.0
Other diseases of nervous system	195	84.4	80.8
Diseases of circulatory system	306	132.5	142.2
Pneumonia and broncho-pneumonia	282	122.1	118.4
Other diseases of respiratory system	94	40.7	46.1
Diarrhea and enteritis, under 2 years	27	11.7	13.7
Diarrhea and enteritis, 2 years and over	17	7.4	6.1
Other diseases of digestive system	106	45.9	40.8
Bright's disease and nephritis	140	60.6	61.8
Childbirth	20	8.7	4.8
Early infancy	70	30.3	29.5
Suicide	47	20.3	17.4
Other violence	159	68.8	63.8
All other causes	131	56.7	62.6

CALIFORNIA PUBLIC HEALTH ASSOCIATION.

As announced in the January Bulletin, the California Public Health Association will meet at Del Monte, Monterey, at 2 P. M. April 15th, with the following

PROGRAM.

2:00 P. M. Greetings by the President,
DR. WM. SIMPSON, San José.

2:30 P. M. Geology of Underground Waters and Mineral Springs,
PROF. HENRY JOHNSON, Palo Alto.

3:30 P. M. The Effect of School Life on Children's Health,
DR CHAS. F. CLARK, Woodland.

RECESS.

7:30 P. M.
DR. A. E. OSBORNE, Santa Clara.

8:30 P. M. Questions and discussions on any subject desired pertaining to sanitation or health of mankind.

At the time of going to press the subject of Dr. Osborne's paper had not been received, but from the Doctor's long experience with children, and his careful study of their mental, nervous, and physical conditions we can be assured that whatever the branch of the subject of child life he may select its treatment will be vigorous, scientific, and interesting.

The President of the Association, Dr. Simpson, of San José, has made a strong effort to insure an interesting meeting, and it now depends upon the health officers of the State, and all others interested in good health, and especially in the well-being of the children, to turn out and make it a success.

Although not entirely given over to the study of child life, the intention is to make that the main topic of discussion, and certainly there is none which needs to be discussed more than this.

PURE FOOD AND SANITARY LEGISLATION.

The Legislature which has just adjourned enacted several laws which are of great importance to the State, looked at from the standpoint of public health.

First among them are undoubtedly the Pure Food and Pure Drug laws. These laws were passed only after long and frequent hearing and consultations in the Public Health committees of the Assembly and Senate—hearings in which all industries affected by the laws were given full opportunities to express their views. As far as definitions and requirements go, these laws are nearly identical with the national law. The standard of purity and strength in that law was adopted in these, and the rules and regulations adopted by the United States Department of Agriculture for its enforcement will undoubtedly be adopted in this State. The advantage of this uniformity must be apparent to all, as it would be much more difficult to enforce a law where two standards of purity existed.

The enforcement of the Act is put upon the State Board of Health, which is required to establish a laboratory and appoint a director, who must be a skilled pharmaceutical chemist. Agents can be appointed as necessity requires, and every sheriff in the State is made an agent of the Board, and must collect samples for analysis whenever called upon to do so. The interests of the manufacturers and dealers are safeguarded against any unjust attempt to do them injury; but the punishment by a fine of not less than twenty-five nor more than five hundred dollars, or by imprisonment not exceeding six months, or by both, and the certainty of getting an undesirable advertising, should deter them from inflicting impure adulterated food and drugs upon the public.

* * *

Another law which was enacted in the interest of sanitation makes it a misdemeanor "to discharge mucus from the nose or mouth, or spit upon any sidewalk of any public street or highway, or upon any part of any public building or railroad train, street car, stage, ferry-boat, steamboat, or other vessel or vehicle used for the transportation of the public." The value of this law will be appreciated by all who have observed—and who has not?—the terribly foul condition of all the places enumerated caused by the filthy and dangerous habit of public spitting.

* * *

In the past there has been no State law requiring physicians and *others to report communicable* diseases. Local ordinances required it,

but a person outside the jurisdiction of that local ordinance was under no such obligation to do so. This is remedied by a law requiring the reporting, by physicians, nurses, and others, of all communicable diseases, including pulmonary tuberculosis. This should be strictly observed and enforced throughout the State, for it is impossible to successfully combat a contagious disease, the location of which is unknown.

* * *

There is now in the Governor's hands awaiting his signature a bill passed by both houses of the Legislature, appropriating $2,000 to be used in disseminating knowledge among the people of California as to the best means of preventing the spread of tuberculosis. As more than four thousand die each year in the State from this disease, $2,000 is not much with which to attempt to save them. It is less than fifty cents each; but where so many are dying from a disease which might have easily been prevented had they only known how, untold good can be done with this small amount.

HUNGRY SCHOOL CHILDREN.

"'After bread, education is the first need of the people.' So runs Danton's fine phrase which has been inscribed upon one of the finest public monuments of Paris, and which the visitor frequently sees displayed in the public schools of France. More than two thousand years before Danton, Aristotle had said the same thing in a phrase not less luminous or striking than that of the French revolutionist. 'First the body must be trained, and *then* the understanding,' declared the great philosopher.

"That education is a social necessity is no longer seriously questioned, but the other idea of the French revolutionist and the older philosopher, that education must come after bread—that it is alike foolish and cruel to attempt to educate a hungry child—is often lost sight of. In the early days of the agitation for free and compulsory education it was not infrequently urged that before the state should undertake to compel a child to attend its schools and receive its instruction it ought to provide for the adequate feeding of the child to enable it to receive the education. That argument, happily, did not prevent the establishment and development of public education, but now that the latter institution has been firmly rooted in the soil of our social system, there is an increasing belief in the inherent wisdom and justice of the claim that the state has no moral right to attempt to educate an unfed or underfed child.

"Apart from the question of moral right is the unwisdom of such a policy. All practical educators agree that the money and effort spent in the endeavor to instruct hungry or underfed children are largely wasted. Superintendent Maxwell of the New York public schools sums up the experience of the ages when he says, 'Education, whether physical or mental, is seriously retarded, if not practically impossible, when the body is improperly nourished.' Horace Greeley expressed the same truth many years ago, when he said in a lecture to teachers: 'In vain shall we provide capable teachers and comfortable school-rooms, and the most admirable school books, apparatus, libraries, etc., for those children who come shivering and skulking in rags—who sit distorted by the gnawings of hunger or suffering from the effects of innutritious or *unwholesome food.* * * *' Nothing more grotesque or shortsighted *can well be imagined* than our present policy of lavishing money upon

the vain effort to educate those children, to be found in such large numbers in our public schools, who, because they are inadequately nourished, can not profit by the expenditure."

The above from John Spargo's "Underfed School Children, the Problem and the Remedy," opens a whole chapter of thought for one interested in the proper development of the children.

In California, where the severe conditions of life are greatly modified by the fertility of the soil, mildness of climate, and general prosperity, there are not in our public schools such a proportionately large number of underfed children as in the large cities of the East, but if any one interested in the subject will take the pains to visit some of our schools, talk with pupils and teachers, or even watch the pinched and careworn faces of the little children, he will soon become convinced that even prosperous California has many underfed children. Watch these children for a few years and you will find that they become the street hoodlums, and that the inmates of jails and prisons are recruited from their ranks. As Greeley said, "In vain shall we provide capable teachers and comfortable school-rooms, and the most admirable school books, apparatus, libraries, etc., for those children who come shivering and skulking in rags—who sit distorted by the gnawings of hunger or suffering from the effects of innutritious or unwholesome food." They can not apply themselves to the task at hand, and suffer mentally and morally as a consequence. Much of the crime which fills our prisons and the pauperism and degeneracy which fill our hospitals could be traced back to the poor nutrition and underfeeding of the little ones.

It is equally disastrous to them physically, for the underfed child does not attain the same development as the one having proper nourishment. They are of smaller stature, have less developed vital organs, and have little resisting power, and if they live to adult age easily fall victims to disease. Consumption, the great white plague, which is carrying off one-seventh of our population, finds its easiest victims in the poorly nourished children, and any fight against that scourge which does not take into account this factor will fall far short of accomplishing all it seeks to do.

Looked at from whatever point of view you choose, the subject is of the deepest interest and concern to the State. Do we want to lessen the population of our prisons and asylums? Are we ambitious to produce a race of robust, independent men and women? Do we want to wipe out consumption and kindred diseases of low vitality? If so, we must look to the children and see that their physical development is properly guarded. No young animal can rightly develop without sufficient food, and the young human has no advantage in this respect over his cousins.

Without plenty of good nourishing food with which to begin the day the average child can not develop its physical strength, to say nothing of doing the school work allotted. As a result, we get our sickly, flat-chested children, who have a slight grip upon life, but who live to propagate a race with equally low vitality — our discouraged ones, who run away from school to find more inviting fields and who fill our prisons, and the others who soon fall by the wayside, victims to the diseases which make havoc in child life.

The need for some provision to feed the underfed children is manifest even here in prosperous California. Many of the European countries *are progressing along this* line, and some to a considerable degree. A

few of our own states are attempting to furnish breakfast to those who need it. The plan is opposed by some on the plea that it will pauperize the child; but free education had to meet the same objection. Free school books, which are furnished in many places, and will some time be in all, are no more pauperizing than a free breakfast, nor are they as necessary as the breakfast to the hungry child.

MEASLES A DANGEROUS DISEASE.

During the last six months of 1905 and the first six of 1906, 128 deaths occurred in California from measles—almost three times as many as from scarlet fever. These figures do not represent the unknown number who died from troubles arising as complications, such as pneumonia and consumption; a number which is, no doubt, several times as large.

Notwithstanding this death-rate, measles is considered by very many an unimportant disease, and we not infrequently hear a mother say, "The baby has got to have them some time, and it might as well be now," and unnecessarily exposes the child. It is needless to say that this should never be done, but, on the contrary, every precaution should be taken to guard the child against the danger of infection.

It may be impossible to keep all children free from the disease, but it is entirely unnecessary and greatly to be deplored that any one be purposely exposed. Instead, every means should be taken to confine the disease and protect others.

The question is often asked if measles should be quarantined. A person with measles should most certainly be quarantined and not allowed, until past the possibility of communicating the disease, to mingle with others. The disregard of this precaution has caused the death of many a child, and whoever neglects it is, in a measure, responsible for such deaths.

The disease is actively contagious, but it is doubtful if any one not actually connected with the care of the patient would carry the disease to others on their person or clothing, unless they were themselves infected.

This fact can be taken advantage of, and the patient isolated in some remote part of the house so that the bread-winners of the family can still go about their work. To do this with safety it is necessary that the utmost care be honestly taken.

The room selected should be as remote as possible from the living apartments, and should be free from all unnecessary articles, such as drapery, carpets, upholstery, books, etc., and should be well aired and kept clean by wiping with a cloth dampened with some disinfecting fluid. Sweeping should be avoided, as lung complications are very liable to occur, and the dust caused by sweeping is an added danger.

Nothing should be taken from the sick room until disinfected, and all food left should be at once destroyed. The nurse should not leave the sick room to mingle with the family, and when necessary to leave it, should have a change of clothing. Children are very susceptible to measles, and should not be allowed to go to school or mingle with other children when the disease is in the family. They are oftentimes infectious, and will give the disease before any symptoms are manifest, hence the necessity of keeping those in the family who are apparently well *away from other* children.

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STATE BUREAU OF VITAL STATISTICS.

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STATE HYGIENIC LABORATORY.

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VITAL STATISTICS FOR MARCH.

Summary.—For March there were reported 1,986 living births; 2,680 deaths, exclusive of stillbirths; and 1,469 marriages. For an estimated State population of 2,001,193, these figures give annual rates as follows: Births, 11.7; deaths, 15.8; and marriages, 8.6. The corresponding rates for February were, respectively, 11.6, 15.0, and 10.5.

The number of marriages was highest in the following counties: Los Angeles, 311; San Francisco, 258; Alameda, 202; Sacramento, 63; and Santa Clara, 61.

The birth total was greatest for San Francisco, 433, next for Los Angeles city, 338, and next for Oakland, 152. The freeholders' charter cities with the next highest totals were: Pasadena, 46; Berkeley, 38; Fresno, 30; San José, 29; and Alameda, 28.

The death list was greatest for San Francisco, 595, followed by Los Angeles city, 392, and Oakland, 202. The cities next in order were: Sacramento and San Diego, each 65; Stockton, 44; San José, 36; Alameda, 34; Pasadena, 32; and Berkeley, 31.

The deaths reported for March were distributed by geographic divisions, as follows: Northern California—coast counties, 150; interior counties, 175; total, 325. Central California—San Francisco, 595; other bay counties, 387; coast counties, 182; interior counties, 391; total, 1,555. Southern California—Los Angeles, 547; other counties, 253; total, 800. State total, 2,680.

Causes of Death.—There were 412 deaths, or 15.4 per cent of all reported for March, from tuberculosis of the lungs and other organs, and 404, or 15.1 per cent, from pneumonia and other diseases of the respiratory system. Third in order, as usual, are diseases of the circulatory system, heart disease, etc., causing 375 deaths, or 14.0 per cent.

Instead of typhoid fever, as usual, the most fatal epidemic diseases in March were measles and diphtheria and croup. There were 30 deaths from measles, 27 from diphtheria and croup, 24 from typhoid fever, 15 from whooping-cough, 8 from influenza, and 11 from all other epidemic diseases.

Detailed figures on causes of death in California appear in the table below, which shows the number of deaths due to certain principal causes for March, as well as the proportion from each cause per 1,000 total deaths for both March and February:

Cause of Death.	Deaths: March, 1907.	Proportion per 1,000.	
		March, 1907.	February, 1907.
ALL CAUSES	2,680	1,000.0	1,000.0
Typhoid fever	24	9.0	13.0
Malarial fever	4	1.5	1.7
Smallpox			0.4
Measles	30	11.2	6.1
Scarlet fever			1.7
Whooping-cough	15	5.6	5.6
Diphtheria and croup	27	10.1	8.7
Influenza	8	3.0	5.2
Other epidemic diseases	7	2.6	2.2
Tuberculosis of lungs	362	135.1	147.6
Tuberculosis of other organs	50	18.7	18.6
Cancer	119	44.4	44.2
Other general diseases	86	32.1	37.2
Meningitis	58	21.6	17.7
Other diseases of nervous system	211	78.7	84.4
Diseases of circulatory system	375	139.9	132.5
Pneumonia and broncho-pneumonia	307	114.5	122.1
Other diseases of respiratory system	97	36.2	40 7
Diarrhea and enteritis, under 2 years	32	11.9	11.7
Diarrhea and enteritis, 2 years and over	12	4.5	7.4
Other diseases of digestive system	118	44.0	45.9
Bright's disease and nephritis	171	63.8	60.6
Childbirth	23	8.6	8.7
Early infancy	87	32.5	30.3
Suicide	52	19.4	20.3
Other violence	234	87.3	68.8
All other causes	171	63.8	56.7

SMALLPOX.

Smallpox had been nearly eradicated from the State until a few weeks ago, when a case occurred in Richmond and was not recognized. From this case others arose, until it became quite prevalent in the locality, and from it one party carried the disease to Los Angeles, where fortunately it was quickly recognized and cared for. Many other towns may have been or will be infected, and health officers should be on their guard. There is no great danger of a severe epidemic of smallpox. *Vaccination will stop it*, and in its presence even many of those who are violently opposed to our vaccination law hasten to get vaccinated—an act which does honor to their better judgment. The responsibility of the physician is strikingly shown in this case. The State law is definite in requiring physicians, nurses, and others having charge of cases of contagious disease to report to the health officer at once, and it is his duty to see that proper care is taken to protect the community. *If he is in* doubt about the diagnosis, the State Board of Health stands *ready to help clear it* up. It is far better to be on the safe side and

that some family should undergo the inconvenience of a temporary quarantine than that contagious diseases become epidemic.

The following is the law regulating the reporting of communicable diseases, and all health officers should see that it is enforced:

Section 2979*a*. It is the duty of each coroner, and of every county, city and county, city or town health officer, and every member of the local board of health, knowing, or having reason to believe that any case of cholera, plague, yellow fever, leprosy, diphtheria, membranous croup, scarlet fever, smallpox, Manila, Philippine or Cuban itch, dobe, bumps, typhus fever, typhoid fever, malignant pustules, anthrax, glanders, cerebro-spinal meningitis, pulmonary tuberculosis, pneumonia, dysentery, erysipelas, uncinariasis or hookworm, trachoma, dangue, tetanus, measles, chickenpox, whooping-cough, mumps, or any other contagious or infectious disease exists, or has recently existed, within the city, county, city and county, town, or township of which he is such officer, to take such measures as may be necessary to prevent the spread of such disease, and to report at once in writing such cases to the secretary of the State Board of Health at Sacramento. It is also the duty of every attending or consulting physician, nurse, or other person having charge of or caring for any person afflicted with any of said contagious diseases, to report at once in writing to the local board of health or local health officer the nature of the disease, the name of the person afflicted, and the place of his or her confinement. The State Board of Health, or its secretary, upon being informed of any such contagious or infectious disease, may thereupon take such measures as may be necessary to ascertain the nature of such disease and prevent the spread of such contagion, and to that end, said State Board of Health, or its secretary, may, if deemed proper, take possession or control of the body of any living person, or the corpse of any deceased person, and may direct and take such means as may be deemed expedient to arrest or prevent the further spread of such disease.

CEREBRO-SPINAL MENINGITIS.

This disease has made its appearance in several parts of the State, and caused the death of fifty-eight persons during March. These figures do not include those dying from tubercular meningitis, but it is more than probable that they are not all from the contagious type. It is extensive enough, however, to cause the exercise of the greatest care. The State Board of Health is in receipt of inquiries from health officers regarding the infectiousness of the disease, and the steps necessary to be taken to prevent its spread.

The disease is undoubtedly infectious, and every case must be promptly reported to the health officer, the patient isolated, and all discharges from the body destroyed. The discharges from the nose and throat must be received on cloths and burned at once. After death, or recovery, everything connected with the patient must be thoroughly disinfected.

When the disease is found to exist in a community every doubtful case should be considered as positive and the same care exercised, for with the severe cases are always mild ones, some to a degree that it is impossible to be sure of the diagnosis. These mild cases, however, if true cases of the disease, are equally dangerous with the others, and when dealing with a disease that is so generally fatal no chances should be taken, but the utmost care exercised.

REPORTING TUBERCULOSIS.

The attention of local boards of health is called to the law recently enacted by the State Legislature requiring that physicians, nurses, and others having charge of cases of pulmonary tuberculosis should report them in writing to the health officer. We would suggest that you include this disease in your regulation as a reportable disease, and send cards with a full printed list of reportable diseases to all physicians, on which they are to report. Quarantine or publication is not required, nor is it *desirable in* tuberculosis, but it is necessary that the health

officer should know the existence and locality of each case, so that proper information for the protection of other members may be given the family, if needed, and the room thoroughly disinfected after death or removal.

THE RESPONSIBILITY OF PHYSICIANS.

There is no position in life that is of equal importance and responsibility as that of the physician. He has a duty to his patient, for life and health depend upon his skill, but he has also a broader duty to the community, for upon his neglect, as well as want of skill, oftentimes depend the lives of many whom perhaps he never saw.

This thought is brought out by recent investigations of epidemics in the State. Very many of these epidemics are the result of ignorance or worse on the part of some one who passes for a doctor, and sometimes, unfortunately, he has a legal right to class himself with that high-minded profession. Oftentimes the first case of smallpox, diphtheria, scarlet fever, or other contagious disease falls into the hands of such a person. He may fail to recognize its true character or more often at the solicitation of the family deny the true diagnosis, and disregarding the law conceal it from the authorities, and death and distress follow.

The physician's responsibility by no means ends when he gives the best skill he has to his patient. If that patient is suffering from a communicable disease, and he fails to report it, he is responsible for all cases arising therefrom. He has committed a misdemeanor and is punishable under the State laws for his neglect or willful disobedience. The difficulty is to convict him, for he takes shelter in ignorance and publicly declares his inability to recognize the disease. The only protection a community has against such men, men who for some personal motive will endanger them all, is to give their patronage to some one more reputable.

We should all consider that if the doctor will cover up a communicable disease to please us, he will to please our neighbor, and that our children will be exposed by his act.

Almost every epidemic we have starts from a neglected case, too often not reported to the health officer. The law requiring the reporting of all cases of communicable disease extends to *all parts of the State*, outside of cities as well as in, and every one, whether doctor, nurse, or friend, commits a misdemeanor who has charge of such a case and does not report it.

PUBLIC HEALTH ASSOCIATION MEETINGS.

The Central California Health Officers' Association held their annual meeting at Hanford, March 11th.

Dr. R. W. Musgrove, Health Officer of Hanford, read a very interesting paper on "Septic Tank System of Sewage Destruction," with special reference to the one in operation in that city. He explained the bacterial action by which the organic matter in the sewage is destroyed, and the necessity that conditions be such that this bacterial life can exist. The author is strong in the belief that a city should have separate systems for house sewage and storm water. In cities with oiled streets and where oil is largely burned it gets into the sewers and ~troys the bacterial action to a great degree. Manufacturing wastes, ~cially from wineries, should be kept out, for the same reason.

~e discussion was general and interesting.

At the business meeting the following officers were elected: President, Dr. R. W. Musgrove, of Hanford; Vice-President, Dr. S. W. R. Langdon, of Stockton; Secretary, Dr. Mary R. Butin; Treasurer, Dr. George L. Long, of Fresno.

The time and place of the next meeting will be determined by the executive committee.

All of the members present were delightfully entertained by Dr. Musgrove at his home, where was found in his charming wife one strong element of the doctor's success in his profession.

The attendance was not what the extent of the territory represented, the intelligence of the health officers, or the importance of the meeting warranted us to expect. Various causes contributed to this—bad condition of the roads, other business engagements, and possibly from a certain want of interest. That this should be so is greatly regretted, for the information, enthusiasm, and love of the work which are gained by those who attend these meetings redounds both to the honor and the profit of the participants.

There is something in the plea that health officers get very little pay for the amount of skill and work required, and that they can not afford to spend the money and time required to attend these meetings. The municipality or county should pay the expense, for they secure the benefit. This is done in some places, and should be in all. The pay of health officers is ridiculously small in most places. No other kind of professional work gets such little pecuniary recognition. They can, however, regulate this themselves, if they only will, and organization and union are the best means, for "in union there is strength."

We must get the respect of the people, and show to them our efficiency and power for good, and the first step to gain that respect is to respect ourselves. We must study the problems involved in guarding the public health, and be able to meet any question that may arise. Unity of action and methods, and a constant search for the best is necessary. Sanitary science is rapidly advancing, and he who thinks because he has served for years in his office, plodding along in the same old path, that he is doing the best possible work for the public is mistaken. Giving no better work than he did years ago, there is no sensible reason to the average man why he should receive better pay; but let the public see that the health officer understands the many means of protecting and safeguarding life and health, and is earnest and impartial in enforcing these means, and they will willingly pay the price for the better work.

* * * * *

The eighth semi-annual session of the California Public Health Association was held at Monterey, April 15th. The President, Dr. William Simpson, of San José, called the meeting to order and delivered the following excellent address:

Cicero said: "Nothing brings men nearer to the gods than the giving of health to their fellow creatures."

Prior to the middle of the nineteenth century the practice of medicine was largely tentative, always indefinite and often heroic. This period was followed by an interim of skepticism, minimism, and expectancy, and this again has been followed by what now may be truly termed the period of scientific medicine, for drugs have been tested and labeled until their efficacy and place in the practice of medicine are fixed, expectancy has its own corner and knows and keeps its place, the skeptic leaves the practice of medicine for other fields, and the minimist, who believes there is so little in his work that it is hardly worth doing, simply hangs on the outer edge and is the horrible example that stimulates his conferees to better work.

For centuries the practice of medicine was simply a game of "follow my leader," and the dogmatic assertion of the leader of the period was as final in medicine as a papal bull in theology. From this the pendulum has perhaps swung to the other extreme, until any person who has kissed the blarney stone or read some forgotten story of the days of Mesmer or Cagliostro may propound a new system of medicine or theology with the assurance of finding followers a-plenty.

For these conditions the medical profession are alone to blame, in that they, in the beginning, and even to this day, too much neglect the psychological side of the profession, emphasizing so strenuously the physiological side that it leaves room for the faddist to successfully foist upon humanity the rankest fallacy. From this contemplation it is a pleasure to turn to a society like the Public Health Association, which has no theories to advance, no selfish ends to gain, can not be suspicioned of self-seeking or self-interest, but preaches and practices the gospel of cleanliness, of self-help, of prevention—which seeks no honor for itself, no emoluments for its officers or members, but simply and solely the greatest good of the greatest number.

The interest in this organization, instead of being limited to the faithful few who have from its organization been devoted to its interests, should include every educator, every head of every public institution, every trustee or worker in or manager of every private institution, no matter what its character, in the State; for there is not one of these which does not have questions of sanitation constantly thrusting themselves on their attention, and to help in the answering of these is the province of this organization, and to this end we ask and believe we are entitled to recognition of our work by the State in the publication of our papers.

Those who have followed the meetings of this organization know that much valuable material has been lost for lack of funds to print our proceedings. Pope's couplet—

> "Reason's whole pleasure, all the joys of sense,
> Lie in three words: health, peace and competence,"

are as true to-day as when written, and we who are the conservers of the first are contributors to the other two; for without health peace is impossible and competence worthless.

That the calamity which followed so speedily our last annual session caused no serious epidemic we are all sure is due to the sanitary precepts enforced by our secretary and by the Board of Health of San Francisco under the able leadership of our vice-president and with the assistance of one of our charter members, Dr. Rupert Blue, of the United States Public Health Service.

In behalf of the California Public Health Association, I, as president, welcome you to our eighth meeting and thank you for the interest expressed by your presence.

Prof. Henry Johnson, of Stanford University, delivered from notes illustrated by drawings a very interesting and instructive lecture on "Geology of Underground Waters and Mineral Springs." His lecture related especially to the formation of the Santa Clara Valley, and showed very clearly the source of the artesian water supply to be in the surrounding mountains, where the strata which underlie the valley come to the surface with a very steep dip, thus allowing the water which falls thereon, to rapidly flow into the underground reservoir. There was no discussion of the possibility of this water becoming polluted, and in this case being on high hills that are sparsely settled the danger is small, but under less favorable circumstances this might result, and all artesian supplies should be mapped out and studied by some one thoroughly capable of making a scientific report.

Dr. Chas. F. Clark, of Woodland, read a paper on "Effect of School Life on Children's Health," which was both interesting and instructive. The writer believes that the steady raising of standards in the schools, and the consequent tax upon the vital energy of the students, are responsible for much of the nervous trouble which they certainly have. In support of this he refers to school statistics taken by competent examiners. Headache from whatever cause increases day by day and grade by grade as the student advances in his course. Investigations made in St. Petersburg and London prove the gradual increase of nervous troubles as the time in school advances. In Cleveland seventy-five per cent of the girls and thirty per cent of the boys who left school during *the year did so from* ill health. In Waltham a class of seventeen was

decreased by nine from ill health during the graduating year. The writer believes that the school is not the cause of this ill health; "heredity, home environment, and an endless number of conditions foreign to school" are factors, but that the continued mental effort superimposed on these factors is what breaks the health. Medical supervision of schools in a broad sense is demanded, a supervision that can guide the weakened mentalities and those physically frail to the best that can possibly be attained.

The discussion of the paper was very ably and interestingly opened by Prof. Job Wood, of the State Department of Public Instruction, who, while enthusiastic for the good work our public schools are doing, sees plainly the hardship they impose on the weaker scholars, and the mental and physical breakdowns which result.

The discussion was quite general, and the following resolution offered and adopted:

Resolved, That the California Public Health Association, recognizing the many cases of eye, ear, and throat troubles, as well as many other ills among the children in both public and private schools, earnestly urges that boards of education and superintendents of private schools shall appoint medical inspectors for the purpose of ascertaining and correcting these evils as they may be found to exist.

Dr. A. E. Osborne, of Santa Clara, read a paper on "The Socio-Economic Status of the Feeble-Minded." The paper was scholarly and full of good thoughts, but the lateness of the hour prevented discussion.

An effort will be made to have the papers published so that the State may benefit by the labor spent upon them.

The Association adjourned to meet in its Fall session at Woodland, Yolo County.

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Dr. E. E. Stone, President of the Northern District Medical Society, has arranged for a section of "Public Health" at the next meeting, with one or more papers pertaining to that subject. All health officers will be welcome, and should avail themselves of this opportunity to discuss questions of vital interest to the public and themselves.

WILL THE LAW BE ENFORCED?

During the month of February there died in California 384 persons from tuberculosis, and 282 from pneumonia, both of them communicable and consequently preventable diseases. Six hundred and sixty-six out of twenty-three hundred and ten, or almost 29 per cent of all deaths, died in this one month from these two causes. What an awful sacrifice of life to ignorance and carelessness! A larger share of these were in the prime of life, and useful, productive members of society, and the economic loss to the State was immense, to say nothing of the sorrow and broken home circles.

The last Legislature, fully appreciating this loss, passed a law with the aim to check this wholesale murder, for murder it morally is for one person to kill another, whether it is done with a quick method like a shot or a slow one of infection with disease.

This law is as follows: "It shall be a misdemeanor for any person to discharge mucus from the nose or mouth, or spit upon any sidewalk of any public street or highway, or upon any part of any public building or railroad train, street car, stage, ferryboat, steamer, boat or other vessel or vehicle used for the transportation of the public."

Another law requires physicians and others to report all communicable diseases, among which are enumerated pulmonary tuberculosis and pneumonia. Had these laws been in effect and carefully observed, many of the 666 who died of these two diseases the month the law was enacted, would now be alive and productive citizens. That sputum contains the disease germs, that these germs live for a certain time after the sputum has dried and become dust, that they are carried to homes on shoes and clothing, that as dust they get on our food and into our drink, are all demonstrable propositions, and that many of those dying received their infection from this source there can be no doubt.

The laws are now in force and should be enforced, and it is the duty of every police officer, sheriff, or constable to arrest any one caught violating the expectoration law. A few arrests of prominent spitters in every city or town would put a stop to the filthy and dangerous habit by making sentiment strong enough to outlaw any one who practiced it.

Will these officers do their duty? We fear not, unless the sentiment is created first. And for this work there is no power so great as the newspaper and magazine. These publications in California have always been found willing and anxious to enlighten and help the people. Will they not now take up the question and publish the law so that none may be ignorant of its existence and show to their readers by editorials the dangers which exist in public spitting? Why can not our civic improvement organizations, our women's clubs, our different labor unions and our fraternal societies all lend a helping hand, for all are exposed to the same dangers. If they would spend ten minutes at each meeting in listening to a plain exposition of the dangers of this habit, more good would be received than by any other way it could be spent.

CALIFORNIA STATE BOARD OF HEALTH.

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STATE BOARD OF HEALTH.

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VITAL STATISTICS FOR APRIL.

Summary.—For April there were reported 1,938 living births; 2,694 deaths, exclusive of stillbirths; and 2,019 marriages. For an estimated State population of 2,001,193, these figures give annual rates as follows: Births, 11.8; deaths, 16.4; and marriages 12.3. The corresponding rates for March were, respectively, 11.7, 15.8, and 8.6.

The number of marriages was highest in the following counties: Los Angeles, 418; San Francisco, 385; Alameda, 279; Santa Clara, 95; Sacramento, 91; Marin, 62; and Orange, 50.

The birth total was greatest for the following freeholders' charter cities: San Francisco, 402; Los Angeles, 322; Oakland, 138; Berkeley, 52; Alameda, 49; San José, 44; Fresno, 36; and Pasadena and Sacramento, each 32.

The death list was greatest for the following cities: San Francisco, 562; Los Angeles, 366; Oakland, 160; San Diego, 77; Sacramento, 62; Stockton, 56; Alameda, 35; Berkeley, 34; San José, 30; Pasadena, 27; and Fresno and Long Beach, each 26.

The deaths reported for April were distributed by geographic divisions, as follows: Northern California—coast counties, 112; interior counties, 227; total, 339. Central California—San Francisco, 562; other bay counties, 369; coast counties, 163; interior counties, 465; total, 1,559. Southern California—Los Angeles, 552; other counties, 244; total, 796. State total, 2,694.

Causes of Death.—There were 372 deaths from tuberculosis of the lungs and 37 from tuberculosis of other organs, making a total of 409, or 15.2 per cent of all for April, from various forms of tuberculosis. There were 394 deaths, or 14.6 per cent of all, from diseases of the

respiratory system, 312 being from pneumonia and broncho-pneumonia and 82 from other diseases of this class. Third in order, as usual, are diseases of the circulatory system, causing 349 deaths, or 13.0 per cent. There were 82 deaths from meningitis and 185 from other diseases of the nervous system.

Typhoid fever, as is nearly always the case, was the most fatal epidemic disease in the month. The total for typhoid fever was 34, against 27 for whooping-cough, 25 for diphtheria and croup, 19 for measles, 18 for influenza, and 16 for all other epidemic diseases.

Detailed figures on causes of death in California appear in the table below, which shows the number of deaths due to certain principal causes for April, as well as the proportions from each cause per 1,000 total deaths for both April and March:

Cause of Death.	Deaths: April, 1907.	Proportion per 1,000.	
		April, 1907.	March, 1907.
ALL CAUSES	2,694	1,000.0	1,000.0
Typhoid fever	34	12.6	9.0
Malarial fever	8	3.0	1.5
Measles	19	7.1	11.2
Scarlet fever	2	0.7	----
Whooping-cough	27	10.0	5.6
Diphtheria and croup	25	9.3	10.1
Influenza	18	6.7	3.0
Other epidemic diseases	6	2.2	2.6
Tuberculosis of lungs	372	138.1	135.1
Tuberculosis of other organs	37	13.7	18.7
Cancer	120	44.5	44.4
Other general diseases	83	30.8	32.1
Meningitis	82	30.4	21.6
Other diseases of nervous system	185	68.7	78.7
Diseases of circulatory system	349	129.5	139.9
Pneumonia and broncho-pneumonia	312	115.8	114.5
Other diseases of respiratory system	82	30.4	36.2
Diarrhea and enteritis, under 2 years	56	20.8	11.9
Diarrhea and enteritis, 2 years and over	18	6.7	4.5
Other diseases of digestive system	137	50.9	44.0
Bright's disease and nephritis	162	60.1	63.8
Childbirth	29	10.8	8.6
Early infancy	104	38.6	32.5
Suicide	53	19.7	19.4
Other violence	210	78.0	87.3
All other causes	164	60.9	36.8

MEETING OF HEALTH OFFICERS.

Dr. E. E. Stone, President of the Northern District Medical Society, has arranged to have a Section of Public Health at the next meeting of that society, which will be held at Napa, Tuesday, June 11, 1907. There will be a paper by Dr. David Powell of Marysville, discussing the pollution of the Sacramento River by the cities and towns along its banks. As this river is the water supply of many thousands of the inhabitants of California, it is a question of vital importance, and every health officer in the district should attend the meeting prepared to give his views on the subject.

There is an awakening among health officers of the State, and the various medical societies are encouraging it by devoting a portion of the time at their meetings to subjects especially relating to this work. The response from the health officers should be a large attendance, for the meetings are at once interesting and instructive.

MOSQUITOES.

Stockton, it is reported, is taking measures to find out if the mosquitoes in the vicinity of that city are the *Anopheles*, or malaria-bearing species, and if they are found to be will proceed to annihilate them. This is a good work, but why not annihilate them anyway? Malaria is not the only disease carried to humanity, by different species of this pest, and time may show that other diseases, which at the present time we do not think of as being disseminated in that way, are in reality mosquito diseases. At any rate, their biting and buzzing cause a loss of sleep and nervousness that are factors in ill health. They can easily be practically exterminated from any town and much added to the sum of happiness, contentment, and good health.

VEGETABLES AND TYPHOID FEVER.

Investigations made by the State Board of Health prove beyond doubt that there is great danger of typhoid fever being spread by the use of uncooked vegetables which have been contaminated by human excrement. Gardens were found where the liquid excrement was used to sprinkle on the plants to kill insect life. Should those vegetables be eaten raw, as many of them are, serious consequences might result.

In the neighborhood of cities where land is valuable, intense cultivation and fertilization are necessary, and nothing is allowed to go to waste that will enrich the soil. Sewage in concentrated form and sewage-polluted water are used to fertilize and irrigate vegetables which are eaten raw, and strawberries. These things should be carefully watched by local health authorities and not allowed, for there is no doubt much sickness results from the practice. As a precautionary measure, where there is a suspicion of danger, the following from the Bulletin of the Chicago Health Department could be used:

"Dr. Ross C. Whitman, of the Laboratory of the Department, furnishes the following interesting hint to housewives:

"Recent experiments conducted in the laboratory have demonstrated that typhoid bacillus, which may be found upon fruit or vegetables designed to be eaten raw, can be killed by immersing these articles of food in a five per cent solution of tartaric acid for half an hour, and then removing the acid by rinsing in clear water. Such a solution of tartaric acid may be prepared by dissolving one tablespoonful of tartaric acid in a pint of water.

"Tartaric acid is a fruit acid. It is derived from the grape, as citric acid is derived from the lemon. This acid is absolutely harmless, being an important constituent of cream of tartar, which the housewife uses every day. Such a solution of tartaric acid will kill all the typhoid bacilli that may be upon celery, lettuce, radishes, or other vegetables and fruit, as well as oysters or clams that are to be eaten raw. In this way all danger of contracting typhoid from these sources is absolutely avoided. The tartaric acid can be very readily removed by rinsing in clear water. This is a practical household method, and should be used by every housewife."

STRAWBERRIES AND FILTH.

This is not by any manner of means a new dish, having been served ever since "the memory of man runneth not to the contrary," but its antiquity does not lessen its disgusting properties nor its liability to produce sickness. Take a stroll through the ordinary market or by a vegetable and fruit store and watch conditions, especially on a windy day. The strawberries are set out to view for the purpose of inducing trade, but they are entirely unprotected from the dust which is rising in clouds from the street—dust composed of all unmentionable filth. It settles and clings to the berries and no amount of washing will entirely take it away. The berries are also oftentimes closely inspected by the ever-present dog, who leaves them in a no more inviting condition.

This delicious fruit is exposed to enough contamination in its production and picking and should be guarded from any additional in the market. This can easily be done, and local ordinances should be passed requiring that berries should not be exposed to the contaminating influences to which they are now subjected. The purchasers, however, have an immediate remedy by refusing to deal with any one who thus endangers their health.

A Moving Picture.

Place: Sidewalk display of food products.
Time: Midsummer.
Personnel: Flies, pedestrians, customers, etc.

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All honor to the earnest men and women of the south who are so bravely pushing this work.

"DUST AS A FACTOR IN THE PRODUCTION OF DISEASE."

From the Journal of the Royal Sanitary Institute, November issue, we learn that at the congress of the institute held at Bristol, England, Dr. Philip Boobyer presented a paper upon the above-named subject, an abstract of which is published in the Journal.

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1. Pave our streets as far as practicable with smooth and cleanable materials.
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3. Forbid the sweeping of dust and other matters from houses, workshops and factories into the streets.
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10. Advocate the construction of houses, workshops, and factories of such materials and upon such principles as shall obviate, as far as practicable, the accumulation of dust beneath the floors, and in other situations where, under existing conditions, it is liable to harbor.

Finally, let it be our constant aim to minimize the generation of dust in all populous places, and, where its production is inevitable, to secure the adoption of all reasonable means of keeping it out of the general atmosphere.

This subject is a very large one, and all I have endeavored to do is to draw attention to a few sources of injurious dust specially prominent

in connection with the life of cities. I am no revolutionary enthusiast; I only wish to indicate certain directions in which we, as practical sanitarians, might advantageously exercise more care than has been our wont hitherto.—*Iowa Health Bulletin.*

SLEEPING OUTDOORS.

Throughout a large portion of California the temperature seldom reaches the freezing point, and sleeping in the open air is entirely practicable. In winter all that is necessary is warm coverings and a roof or canvas shelter to keep off the rain. There is hardly a house in city or country that could not easily have an outdoor sleeping apartment. A platform on the back or side, either with roof or entirely open, could be cheaply built. If without roof, in winter a canvas could be stretched from the side of the house to near the floor, which would keep the bed and inmates dry. Many houses have porches, the tops of which make excellent places to sleep. Two-story houses generally have a one-story portion, the roof of which, if made flat, and a door opening from the chamber on to it, is unsurpassed for an outdoor sleeping place. With a roof or canvas for winter protection such a place is a joy to any family, and after sleeping on it for a season they could hardly be induced to sleep inside.

In the morning after a night in the open air one awakes with a feeling of exhilaration and is fresh and strong. None of that headache and languor which are felt after sleeping in a close room. Go from the open-air bedroom into a close room where one has slept, and feel the oppression which comes. You feel stifled and unable to breathe because of the impure air.

During the hours of sleep the breathing is not deep and strong, and portions of the lungs are not well inflated, nor are the powers of life and elimination active. If the air breathed during that time is loaded with broken-down matter from the lungs, as it is if breathed over and over again, as is indoor air, the effect on the lungs and bodily health can be only bad. Many cases of consumption result from such sleeping. If perchance the germs of consumption or other infectious disease are in the air they find in the lung, which is only partially inflated, and that with air deprived of most of its oxygen, a place exactly to their liking. Disease germs have very little chance of prolonged vitality in pure air, as it is one of the best disinfectants known, and consequently a preventive of disease. Especially is this true of consumption, and those who would be free from this terrible disease should live as much as possible in the open air. It is not within the power of all to spend the day out of doors, but the nights can be, and as we pass nearly a third of our time in bed, the breathing of pure air during that time would be a mighty aid in eradicating the "Great White Plague."

We all have the power, to a greater or less extent, to destroy the disease germs which attack us, and this power depends in a considerable degree upon the physical strength and vitality of the person. Anything to increase that vitality should be practiced, and nothing which is at once cheap and pleasurable can compare with outdoor sleeping.

MEASLES AND WHOOPING-COUGH.

"Measles and whooping-cough are very prevalent—shown more by the number of deaths than by the number of cases reported. The deaths from these two diseases for the week nearly equal those from scarlet fever and diphtheria. Physicians seem to be sharing the indifference of the public toward measles and whooping-cough. The city ordinance requires physicians to report measles and whooping-cough the same as scarlet fever and diphtheria. Physicians are neglecting to comply with this requirement. The laity too often regard measles and whooping-cough as trivial diseases, but medical men know these diseases to be very destructive to early child life. They are especially fatal to children under two years of age, and children should be guarded against exposure to the infection of either of these diseases as long as possible. As agents for destroying life, measles and whooping-cough are as important as diphtheria and scarlet fever. The Department of Health announces to physicians and to the public that it is deemed wise to adopt similar precautionary measures in these two diseases as those now enforced in diphtheria and scarlet fever. Warning cards will be posted; patients must be kept from contact with others liable to the disease; return termination card will be required, as in scarlet fever and diphtheria, and the cases will be notified terminated by the Department of Health. Children will not be eligible to return to school until the final termination card is issued by the Department, in the same manner as now in practice in cases of scarlet fever and diphtheria."

The above from the Chicago Bulletin of Health shows that these diseases are reaping their victims in other places as well as in California, and that the health authorities have the same difficulty in making laity and physicians recognize their danger. Health officers in this State are reminded that there is a State law requiring the reporting of both of these diseases, and that measles be quarantined. Whooping-cough can be quarantined, if it be considered necessary.

AN OBJECT LESSON.

People rarely get vaccinated except when they have to—either on the actual presence of smallpox, or on account of some law or regulation requiring it. And as a rule ordinances requiring vaccination are not passed except in the presence of smallpox, and then, as soon as the actual danger is over, the regulations fall into innocuous desuetude. So, after all, in its last analysis, the actual practice of vaccination depends almost exclusively on the actual presence of smallpox. School boards will enforce vaccination while smallpox is in the community, but as soon as the immediate danger is passed, then the practice is no longer carried out. As a result of this, those communities that have had more or less smallpox for several years in succession are very nearly immune, some people having had the disease and acquired immunity that way; others having been vaccinated and acquired immunity that way. In such a community smallpox will die out, for there is nothing for it to feed upon. When it dies out, vaccination stops, and children grow up unvaccinated, and, in a few years, most people are susceptible to smallpox again. And in a few years smallpox *gets introduced again.* And then it spreads like fire in a forest, because

Another law requires physicians and others to report all communicable diseases, among which are enumerated pulmonary tuberculosis and pneumonia. Had these laws been in effect and carefully observed, many of the 666 who died of these two diseases the month the law was enacted, would now be alive and productive citizens. That sputum contains the disease germs, that these germs live for a certain time after the sputum has dried and become dust, that they are carried to homes on shoes and clothing, that as dust they get on our food and into our drink, are all demonstrable propositions, and that many of those dying received their infection from this source there can be no doubt.

The laws are now in force and should be enforced, and it is the duty of every police officer, sheriff, or constable to arrest any one caught violating the expectoration law. A few arrests of prominent spitters in every city or town would put a stop to the filthy and dangerous habit by making sentiment strong enough to outlaw any one who practiced it.

Will these officers do their duty? We fear not, unless the sentiment is created first. And for this work there is no power so great as the newspaper and magazine. These publications in California have always been found willing and anxious to enlighten and help the people. Will they not now take up the question and publish the law so that none may be ignorant of its existence and show to their readers by editorials the dangers which exist in public spitting? Why can not our civic improvement organizations, our women's clubs, our different labor unions and our fraternal societies all lend a helping hand, for all are exposed to the same dangers. If they would spend ten minutes at each meeting in listening to a plain exposition of the dangers of this habit, more good would be received than by any other way it could be spent.

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MONTHLY BULLETIN.

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Vol. 2. SACRAMENTO, APRIL, 1907. No. 11

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STATE BUREAU OF VITAL STATISTICS.

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Summary.—For April there were reported 1,938 living births; 2,694 deaths, exclusive of stillbirths; and 2,019 marriages. For an estimated State population of 2,001,193, these figures give annual rates as follows: Births, 11.8; deaths, 16.4; and marriages 12.3. The corresponding rates for March were, respectively, 11.7, 15.8, and 8.6.

The number of marriages was highest in the following counties: Los Angeles, 418; San Francisco, 385; Alameda, 279; Santa Clara, 95; Sacramento, 91; Marin, 62; and Orange, 50.

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The death list was greatest for the following cities: San Francisco, 562; Los Angeles, 366; Oakland, 160; San Diego, 77; Sacramento, 62; Stockton, 56; Alameda, 35; Berkeley, 34; San José, 30; Pasadena, 27; and Fresno and Long Beach, each 26.

The deaths reported for April were distributed by geographic divisions, as follows: Northern California—coast counties, 112; interior counties, 227; total, 339. Central California—San Francisco, 562; other bay counties, 369; coast counties, 163; interior counties, 465; total, 1,559. Southern California—Los Angeles, 552; other counties, 244; total, 796. State total, 2,694.

Causes of Death.—There were 372 deaths from tuberculosis of the lungs and 37 from tuberculosis of other organs, making a total of 409, or 15.2 per cent of all for April, from various forms of tuberculosis. There were 394 deaths, or 14.6 per cent of all, from diseases of the

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The following from "Public Health," Michigan, shows that other states are suffering in the same way:

"Measles is epidemic over the State. We know that many people believe that their children are bound to suffer this disease some time during their lives, and that as long as they have it easier when young, it is the best course to let them have it, nay, even expose them to it. This is a very dangerous practice, notwithstanding popular argument to the contrary. Death from measles and its sequelæ is chiefly among children under five years of age; rarely, if ever, among adults. Complications arising from measles, such as broncho-pneumonia, tuberculosis, bronchitis, not to mention the weakness frequently left in one or more of the special senses, can not be fought and withstood by our little ones. If once the public could be convinced that this reckless encouragement of the disease is needless and wanton brutality, it could and would be checked. The mere monetary loss to the various communities where measles becomes epidemic is an important item to be considered. Contemplating this disease as a burden of sickness, it is reckoned that the annual average number of cases, 11,836, makes a total cost to the State of thousands and thousands of dollars. Common sense, thrift, convenience, our kinder instinct enlightened, should all teach us that the pernicious practice of exposing children to measles is a crime against humanity, and that the refusal or neglect of proper isolation and disinfection of each case, and other precautions necessary for the restriction of this disease, is the most barbaric indulgence."

NATIONAL CONFERENCES OF HEALTH BOARDS.

At the last meeting of the State Board of Health, the Secretary, N. K. Foster, was appointed a delegate to represent the Board at the meeting of the United States Public Health and Marine Hospital Service with the State and Territorial Boards of Health, and also to the meeting of the State and Provincial Boards of Health of North America, which were to be held in Washington.

The annual meeting of the United States Public Health and Marine Hospital Service with the State and Territorial Boards of Health took place in Washington, D. C., on May 29th. There was a good attendance of delegates from the different State Boards of Health, and interesting and instructive discussions. Surgeon-General Wyman, who is the presiding officer of the conference, had sent out the following subjects for discussion: (1) "The Sanitary Supervision of Milk Supplies," (2) "Malaria: its Geographical Distribution," (3) "Bacillus Carrius."

The general consensus of opinion on the first subject was that all dairies should be carefully inspected, and all defects, as well as all favorable circumstances, noted and recorded. This should be followed by examinations of the milk in the laboratory. With proper care it is entirely possible to keep the bacterial count down to 10,000, or below, per cubic centimeter.

Malaria has spread during the last quarter of a century through some parts of the country, but since the cause of the spread has been discovered to be the mosquito, it has decreased in many places, and can, no doubt, be still more lessened.

The dangers of *Bacillus carrius*, or persons who, having recovered *from an infectious* disease, are still giving off the germs, was interest*ingly discussed* and facts recorded. The possibility of a person who has

recovered from typhoid fever spreading the disease should be borne in mind and precautions taken to prevent it. Instances were given where they had caused an outbreak after several years. Children recovering from diphtheria, or those who have had the disease so lightly as to be unconscious of its existence, often keep the disease alive in a school for months. The only way to eradicate it is to carefully make a culture from the throat and nose of each child and isolate all showing positive results.

* * * * *

On May 30th and 31st the meeting of the State and Provincial Boards of Health of North America was held.

The President, Dr. Chas. D. Smith, of the Maine State Board of Health, delivered an admirable address, which will be published in full in the report. The care of lepers and a report from the different states as to their methods was of much interest, showing the feelings with which they are regarded in the different parts of the country. The general feeling was favorable to a leprosarium supported by the General Government, where any leper could go for a home and treatment, although some were in favor of each State caring for its own.

The plan for the coming International Congress of Tuberculosis was outlined by its Secretary-General, Dr. John S. Fulton, of Washington. The congress will be held in Washington in September of 1908, and will be attended by all the leading men in the fight against tuberculosis from all over the world. A series of thirty lectures by the most eminent thinkers on the subject will be a prominent feature of the congress, as will also an exhibit collected from all over the world. This exhibit will demonstrate the disease in all its phases. The means of its communication through milk, dust, infected meat, personal contact, infected rooms, bedding, clothes, etc.; the means of prevention through destruction of sputum and personal cleanliness of patient, and guarding the health of every one; the means of cure through pure air, good food, rest, and proper care. The management are very desirous of having all organizations, civic, medical, social and labor, represented by delegates, and that cities and states contribute to the exhibit. It will probably be many years before the congress will again meet in this country, and all possible efforts should be made for its success.

At the business meeting on the last day the members of the conference showed their appreciation of California's efforts for good public health and sanitation by electing the delegate from California, Dr. N. K. Foster, President of the Association for the coming year. This is particularly gratifying when it is considered that but four years ago the Eastern states were ready to quarantine against California.

DUST PROBLEM.

An article by Dr. George Homan of St. Louis, on "The Danger of Dust as a Cause of Tuberculosis," is worthy of being produced entire, but on account of space we can only give the following quotation and synopsis:

"There is agreement among authorities that the sputum expectorated by consumptives, and becoming dried and powdered, constitutes the principal means by which the tuberculous infection is extended; the precise manner in which the recipient acquires it—whether by inhalation, *ingestion or inoculation*—being of secondary importance, but that *pathogenic lodgment* must necessarily take place in one or more of

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Time: Midsummer.
Personnel: Flies, pedestrians, customers, etc.

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STRAWBERRIES AND FILTH.

This is not by any manner of means a new dish, having been served ever since "the memory of man runneth not to the contrary," but its antiquity does not lessen its disgusting properties nor its liability to produce sickness. Take a stroll through the ordinary market or by a vegetable and fruit store and watch conditions, especially on a windy day. The strawberries are set out to view for the purpose of inducing trade, but they are entirely unprotected from the dust which is rising in clouds from the street—dust composed of all unmentionable filth. It settles and clings to the berries and no amount of washing will entirely take it away. The berries are also oftentimes closely inspected by the ever-present dog, who leaves them in a no more inviting condition.

This delicious fruit is exposed to enough contamination in its production and picking and should be guarded from any additional in the market. This can easily be done, and local ordinances should be passed requiring that berries should not be exposed to the contaminating influences to which they are now subjected. The purchasers, however, have an immediate remedy by refusing to deal with any one who thus endangers their health.

A Moving Picture.

Place: Sidewalk display of food products.
Time: Midsummer.
Personnel: Flies, pedestrians, customers, etc.

ACT I. Two swarms of flies are breakfasting on a bright summer morning on two delectable dishes in front of the grocer's store—one is a fresh pile of horse droppings; the other a generous expectoration of tuberculous sputum just deposited by a gentleman who has recently "come West for his health." Several pedestrians pass, which alarms the aforesaid flies, and they immediately arise, to settle back on the first thing to attract their attention, which seems to be the attractive food products just put out on the sidewalk by the grocer, and, with legs, wings, and mouth reeking with filth and tubercular germs, they voraciously attack their second course.

ACT II. Infected food eaten by a man who was "run down" by a "bad cold."

ACT III. Another case of tuberculosis reported to the department of health.

ACT IV. Another death from tuberculosis reported to the department of health.

—*Kansas Bulletin.*

ANTI-TUBERCULOSIS LEAGUE OF SOUTHERN CALIFORNIA.

The Anti-Tuberculosis League of Southern California held its regular semi-annual meeting at San Diego on May 2d. This organization has on its membership roll many of the most prominent doctors and laymen of the south, and is doing a magnificent work for that part of the State. The organizers and those who have bravely stood by it have no doubt often felt discouraged, and that the public, in whose interest they were spending their time, money, and energy, did not appreciate their efforts. Such is, no doubt, the truth; but the well attended and really enthusiastic meeting at San Diego should go a long way to cheer them up.

The organization in that city of a subordinate league to work in harmony with the mother organization is a hopeful sign that the people are beginning to see the good results of organization. Desultory and *unorganized* work may do great good, but the same amount of energy

organized and conducted will do infinitely more. Every city and large town in the State should have an anti-tuberculosis league and all these should be united in one central organization. Doctors, ministers, business men, and statesmen should be members. Fraternal societies, civic organizations, labor organizations, and women's clubs should all take a hand, for all are vitally interested. With such an organization over the State, education as to means of preventing tuberculosis could be spread to every class. Hospitals and helping stations could be established and we would be on the eve of the day when one in every seven will not die of tuberculosis.

All honor to the earnest men and women of the south who are so bravely pushing this work.

"DUST AS A FACTOR IN THE PRODUCTION OF DISEASE."

From the Journal of the Royal Sanitary Institute, November issue, we learn that at the congress of the institute held at Bristol, England, Dr. Philip Boobyer presented a paper upon the above-named subject, an abstract of which is published in the Journal.

The doctor calls attention to the action of dust in the production of diseases of the respiratory organs, and after noting the sources of dust he presents the following summary in the way of minifying the dust nuisance and menace as far as possible:

1. Pave our streets as far as practicable with smooth and cleanable materials.
2. Check as far as practicable the deposit of fecal and other organic detritus in streets, courts, alleys, and yards.
3. Forbid the sweeping of dust and other matters from houses, workshops and factories into the streets.
4. Stop all dry sweeping of streets, and secure the use of closed carts for all scavenging purposes.
5. Forbid the passage of motor cars at more than, say, ten miles an hour past any house or houses standing within fifty feet of a road or street in any district, and limit their speed to ten miles an hour in all urban districts.
6. Discourage, as far as practicable, the use of carpets in houses, and forbid the shaking of carpets and mats in the vicinity of dwellings and work places.
7. Encourage the burning of all organic refuse, including infected materials produced on domestic premises, in the kitchen fires.
8. Pursue a vigorous campaign against the smoke nuisance of towns.
9. Enforce the use of closed bins for the storage of domestic refuse, and see that all public scavenging is promptly, thoroughly and intelligently carried out.
10. Advocate the construction of houses, workshops, and factories of such materials and upon such principles as shall obviate, as far as practicable, the accumulation of dust beneath the floors, and in other situations where, under existing conditions, it is liable to harbor.

Finally, let it be our constant aim to minimize the generation of dust in all populous places, and, where its production is inevitable, to secure the adoption of all reasonable means of keeping it out of the general atmosphere.

This subject is a very large one, and all I have endeavored to do is to draw attention to a few sources of injurious dust specially prominent

in connection with the life of cities. I am no revolutionary enthusiast; I only wish to indicate certain directions in which we, as practical sanitarians, might advantageously exercise more care than has been our wont hitherto.—*Iowa Health Bulletin.*

SLEEPING OUTDOORS.

Throughout a large portion of California the temperature seldom reaches the freezing point, and sleeping in the open air is entirely practicable. In winter all that is necessary is warm coverings and a roof or canvas shelter to keep off the rain. There is hardly a house in city or country that could not easily have an outdoor sleeping apartment. A platform on the back or side, either with roof or entirely open, could be cheaply built. If without roof, in winter a canvas could be stretched from the side of the house to near the floor, which would keep the bed and inmates dry. Many houses have porches, the tops of which make excellent places to sleep. Two-story houses generally have a one-story portion, the roof of which, if made flat, and a door opening from the chamber on to it, is unsurpassed for an outdoor sleeping place. With a roof or canvas for winter protection such a place is a joy to any family, and after sleeping on it for a season they could hardly be induced to sleep inside.

In the morning after a night in the open air one awakes with a feeling of exhilaration and is fresh and strong. None of that headache and languor which are felt after sleeping in a close room. Go from the open-air bedroom into a close room where one has slept, and feel the oppression which comes. You feel stifled and unable to breathe because of the impure air.

During the hours of sleep the breathing is not deep and strong, and portions of the lungs are not well inflated, nor are the powers of life and elimination active. If the air breathed during that time is loaded with broken-down matter from the lungs, as it is if breathed over and over again, as is indoor air, the effect on the lungs and bodily health can be only bad. Many cases of consumption result from such sleeping. If perchance the germs of consumption or other infectious disease are in the air they find in the lung, which is only partially inflated, and that with air deprived of most of its oxygen, a place exactly to their liking. Disease germs have very little chance of prolonged vitality in pure air, as it is one of the best disinfectants known, and consequently a preventive of disease. Especially is this true of consumption, and those who would be free from this terrible disease should live as much as possible in the open air. It is not within the power of all to spend the day out of doors, but the nights can be, and as we pass nearly a third of our time in bed, the breathing of pure air during that time would be a mighty aid in eradicating the "Great White Plague."

We all have the power, to a greater or less extent, to destroy the disease germs which attack us, and this power depends in a considerable degree upon the physical strength and vitality of the person. Anything to increase that vitality should be practiced, and nothing which is at once cheap and pleasurable can compare with outdoor sleeping.

MEASLES AND WHOOPING-COUGH.

"Measles and whooping-cough are very prevalent—shown more by the number of deaths than by the number of cases reported. The deaths from these two diseases for the week nearly equal those from scarlet fever and diphtheria. Physicians seem to be sharing the indifference of the public toward measles and whooping-cough. The city ordinance requires physicians to report measles and whooping-cough the same as scarlet fever and diphtheria. Physicians are neglecting to comply with this requirement. The laity too often regard measles and whooping-cough as trivial diseases, but medical men know these diseases to be very destructive to early child life. They are especially fatal to children under two years of age, and children should be guarded against exposure to the infection of either of these diseases as long as possible. As agents for destroying life, measles and whooping-cough are as important as diphtheria and scarlet fever. The Department of Health announces to physicians and to the public that it is deemed wise to adopt similar precautionary measures in these two diseases as those now enforced in diphtheria and scarlet fever. Warning cards will be posted; patients must be kept from contact with others liable to the disease; return termination card will be required, as in scarlet fever and diphtheria, and the cases will be notified terminated by the Department of Health. Children will not be eligible to return to school until the final termination card is issued by the Department, in the same manner as now in practice in cases of scarlet fever and diphtheria."

The above from the Chicago Bulletin of Health shows that these diseases are reaping their victims in other places as well as in California, and that the health authorities have the same difficulty in making laity and physicians recognize their danger. Health officers in this State are reminded that there is a State law requiring the reporting of both of these diseases, and that measles be quarantined. Whooping-cough can be quarantined, if it be considered necessary.

AN OBJECT LESSON.

People rarely get vaccinated except when they have to—either on the actual presence of smallpox, or on account of some law or regulation requiring it. And as a rule ordinances requiring vaccination are not passed except in the presence of smallpox, and then, as soon as the actual danger is over, the regulations fall into innocuous desuetude. So, after all, in its last analysis, the actual practice of vaccination depends almost exclusively on the actual presence of smallpox. School boards will enforce vaccination while smallpox is in the community, but as soon as the immediate danger is passed, then the practice is no longer carried out. As a result of this, those communities that have had more or less smallpox for several years in succession are very nearly immune, some people having had the disease and acquired immunity that way; others having been vaccinated and acquired immunity that way. In such a community smallpox will die out, for there is nothing for it to feed upon. When it dies out, vaccination stops, and children grow up unvaccinated, and, in a few years, most people are susceptible to smallpox again. And in a few years smallpox *gets introduced again.* And then it spreads like fire in a forest, because

evening of May 26th the patient died, and the circumstances surrounding it appearing suspicious, an autopsy was ordered performed by the hospital authorities, at which autopsy Dr. Currie of the Public Health and Marine Hospital Service was present as a witness. A post-mortem diagnosis of bubonic plague was made. On May 27th, the Board of Health was notified of said findings, and the Chief Sanitary Inspector and Bacteriologist was ordered to investigate. Specimens of tissue were taken from the spleen; cultures were prepared, and pigs inoculated, which after five days, died, and upon autopsy showed the cause to be bubonic plague.

"The history of the patient is indefinite so far as his local residence is concerned. The latter was given as 247 Steuart street, a rooming house known as the Pioneer Hotel, where, three weeks prior to his being admitted to the hospital, he had engaged a room and taken some of his effects thereto; but according to the statement of the proprietor, he had slept but one night in the room during the three weeks. This room was disinfected with sulphur and kept sealed for five days, after which it was opened by an inspector of this department. All dunnage of the patient, as well as all blankets, mattresses, and other movable contents in the room, were destroyed by fire. The walls were then ordered whitewashed and repainted.

"The tug 'Wizard' leaves an erratic history. She left this port about the 4th of May, and made one round trip to Coos Bay, returning to Howard Street Wharf No. 2 on the 12th of May. On the 13th, she left Howard Street Wharf No. 2 and went to Oakland Creek to haul scows, and remained on this work during the 14th, 15th, 16th, 17th, and 18th, returning to Howard Street Wharf No. 2 on the latter day. The period of infection in the case, in all probability, was on either the 16th, 17th, or 18th. During this time the boat was in Oakland Creek, tied up at night at Boole's Wharf. On the night of the 18th, she tied up at Howard Street Wharf No. 2. One point that may have a bearing on the question is in the fact that the Matson Navigation Company's vessel from Honolulu and Hilo tied up at the same wharf.

"Upon obtaining the above information, this department forwarded a request to Dr. W. C. Hobdie, medical officer in command of the San Francisco Quarantine Station at Angel Island, requesting that said tug 'Wizard' be immediately taken charge of on her return to this port and properly disinfected. This, however, was made unnecessary, as on Friday, the 7th inst., the final chapter in the history of the 'Wizard' and her crew terminated.

"On the 29th of May, while towing the barkentine 'Northwest' from San Francisco, the 'Wizard' struck at 2:20 in the afternoon, sinking at 2:30. The crew, twelve in number, escaped to the barkentine 'Northwest'; they remained on board the 'Northwest' until the 5th ult., when, owing to a shortness of provisions, half of the crew, six in number, was transferred to the schooner 'Henry Wilson,' bound to this port with a cargo of lumber. On the morning of the 6th ult., for the same reason, the remaining six members of the crew were transferred to the steamer 'Atlas' bound for Port Harford for oil. On the morning of the 7th ult., at 9 o'clock, the 'Atlas' transferred these six men to the steamer 'City of Puebla,' bound for San Francisco.

"*The above data* were obtained by Dr. Hobdie from the captains of *the respective* vessels mentioned. On the morning of the 7th, Dr. Hobdie

boarded the 'City of Puebla' and gave the shipwrecked sailors a thorough examination, using both the thermometer and glandular method. It was then nine days from the date of the sinking of the tug 'Wizard.' None of the men had any temperature; none had any glands enlarged, and all were passed.

"Dr. Hobdie further reports, and we concur, as follows: Owing to the suddenness with which the catastrophe occurred, the men had to leave the 'Wizard' in whatever clothing they happened to have on at the moment; in only one or two instances did any escape with as much as an extra suit of underwear. For this reason, it is not believed that there was any danger of infecting the vessel to which they were subsequently transferred, by means of other dunnage, but only in case one of the men actually came down with the disease while on board. The same precautions were taken in the examination of the remainder of the crew that arrived at this port on the schooner 'Henry Wilson' late in the afternoon of the 7th. None of the men were sick, and none had temperatures, and all were passed. Owing to the number of transfers that were made, the situation might have been complicated, but no man was taken ill in any way while on these various vessels. Their dunnage was practically nil, and it is believed that we have heard the last from a sanitary standpoint, of the crew of the tug 'Wizard,' just as we have heard the last of that ill-fated vessel herself.

"This department endeavored to trace the officers and crew of the vessel, but owing to the disturbed conditions, it was impossible to locate the shore residence with any degree of accuracy of any of the officers or crew."

The foregoing is a complete and concise report of the case of plague which occurred in San Francisco in May, furnished by the San Francisco Department of Health. No other cases have resulted and no death of rats has been observed, nor have any infected ones, as yet, been found.

The point of greatest interest in the report is the statement that the "Wizard" was tied up beside a Honolulu vessel. There is no probability that any precaution was taken to prevent rats from passing from one vessel to the other. The Hawaiian Islands have for a long time been having occasional cases of plague, and recently they have been quite frequent. In California no cases have occurred since the fire in April, 1906, when the portion of the city in which it existed a few years ago was completely destroyed. It seems a reasonable conclusion that the infection was from rats on board the vessel from the Islands, and not from any California focus.

Whether this conclusion is correct or not, the fact remains that as long as the Hawaiian Islands are infected the United States are in constant danger of infection. Naturally, San Francisco and Oakland will be in the most danger of infection, as they are in closer communication, but other seaport towns are in danger, and it would not be impossible for an infected rat to stow away in some freight car and visit and infect his relations along the line of railroad on which he chooses to travel. Once implanted in the Middle West and East, it would claim many victims before the end.

The danger is not visionary, but is decidedly imminent, and should *certainly appeal strongly* to the United States Government. The

United States Public Health and Marine Hospital Service have skilled men and have ample ability to properly handle the situation. They are doing all they possibly can with the means at hand to protect the mainland from infection, but they have no jurisdiction over coasting vessels, nor do they have officers in every port. They should be furnished with sufficient means and sent to the Islands to make a thorough investigate and eradicate the disease. While the expense might be considerable, it would be small compared with the cost of fighting it should it once get thoroughly rooted in this country.

As long as the disease exists there it will be a menace to the States, for there is always a big possibility of its getting by any watch that can be kept. The Hawaiian Islands being a stepping-stone to and a part of this country should not be expected to fight the trouble themselves. It is an equal protection to us and we should pay the bills.

THE CONTROL OF DIPHTHERIA BY LABORATORY METHODS.

By A. R. WARD, Director of State Hygienic Laboratory.

Diphtheria, of all the infectious diseases, gives the best opportunity for the successful application of bacteriological methods for its diagnosis and control. This is due to the circumstance that the lesions are most commonly situated in the throat, a location readily accessible for bacteriological examination.

The clinician who ignores the value of bacteriological examinations, or who is unable to utilize the same, recognizes the usual form of diphtheria by the character and location of the diphtheritic membrane, together with certain constitutional symptoms. To such physicians the membrane is an important factor in the diagnosis of the disease, and the termination of clinical symptoms is the only means of determining the end of danger of transmitting infection. Without the assistance of bacteriological methods the diagnosis of diphtheria, even when a membrane is present, is most difficult. The mild cases, in which no diphtheritic exudation is formed, utterly escape recognition unless some other member of the family develops diphtheria with typical lesions.

From the standpoint of the bacteriologist, any lesion in the throat associated with typical diphtheria bacilli is diphtheria, whether the typical membrane appears or not. The extent of the lesion may be restricted by reason of the resistance of the patient, and yet another may contract a serious case of diphtheria from the mild case. The bacteriologist goes even farther, for he regards with grave suspicion a well person harboring virulent diphtheria bacilli in his throat or nose. Such "germ cases" may or may not contract clinical diphtheria, but in any event they are regarded as just as dangerous sources of infection as clinical cases—more so, on account of the absence of quarantine restrictions.

Bacteriological methods likewise furnish an exact method for determining the proper time to release from quarantine. It has been demonstrated that in certain cases virulent organisms persist in the *throat and nose* long after recovery. Such cases, when freed from *quarantine restrictions*, constitute a serious source of infection. Ex-

perience has shown that two successive negatives* from both throat and nose constitute the best guarantee that the convalescent is free from danger of transmitting infection. In Boston, such has been the practice for the past eight years.

The facts revealed by the study of the bacteriology of diphtheria have suggested efficient methods for its control in families, schools, and institutions. Some exceedingly valuable object lessons in the control of diphtheria have been made by Dr. F. F. Wesbrook and associates, under the auspices of the Minnesota State Board of Health.

The existence of an epidemic of diphtheria in one of the schools of Berkeley afforded an opportunity to make an exhaustive trial of the control of diphtheria by strictly laboratory methods.

The results as reported in the Bulletin for January, 1907, indicate that the State Hygienic Laboratory may be made a useful agent in assisting local health officers in the control of school epidemics. At the opening of the schools in the autumn, it is hoped that the work of the laboratory may be extended by undertaking vigorous measures in other cities than Berkeley. With the laboratory at Berkeley as a base of supplies, temporary work by a representative of the laboratory may be undertaken anywhere.

It is the hope and desire of the State Board of Health to take up the work suggested by Dr. Ward this fall. There are some towns in the State that have cases of diphtheria almost every month in the year. There are doubtless "bacteria carrius" in the school, who, while not sick, have the active germs in their throat or nose and communicate them. Upon request from any locality which has not a bacteriological laboratory the Board will arrange to have an expert sent and cultures made from the throats of all the pupils, and feel satisfied that the disease can be stamped out. Lives will be saved—and they are worth saving—if the local health and school authorities will coöperate with the State Board in this matter.

* * * * *

The following from Paul Kennaday, Secretary of the Committee on the Prevention of Tuberculosis, in New York City, is a good synopsis of a recent bulletin:

THE WAY MILK IS INFECTED.

An Important Announcement from the Government Bureau of Animal Industry.

The United States Department of Agriculture has issued a bulletin which points to the conclusion that the real danger from tuberculous cattle lies in the manner in which the germs of tuberculosis are disseminated with their feces and that it is almost entirely through this medium that milk becomes infected with tuberculosis. By a series of careful tests at the Government Experiment Station in Washington, Dr. E. C. Schroeder and W. E. Cotton have demonstrated that cattle discharge germs of tuberculosis in very large numbers, to the extent

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* B. R. Rickards, "The value of two consecutive negative cultures as a method of releasing diphtheria patients." American Journal of Public Hygiene and Journal *of the Massachusetts Association* of Boards of Health, Vol. XVI, November 1906, *No. 4, p. 25.*

very often of over thirty-seven million in one day. Not only animals which show physical signs of tuberculosis, but also those so slightly infected that the diagnosis of tuberculosis depends entirely upon the application of the tuberculin test, are said to be in this manner active and dangerous sources of infection.

It is pointed out that the dairymen can not afford to use precautions, the cost of which is so great that their applications would convert their business into a philanthropic enterprise, but that without such care it is practically impossible to prevent the entrance into the milk pail of the germs of tuberculosis which have been discharged by tuberculous cattle and which are lodged on the cows and in and about the cow stables. These conclusions were reached after a series of careful tests with a number of cows which, though they had tuberculosis, were said to be in better condition than the majority of dairy cows in actual use on dairy farms. The slight infrequent cough with which they were affected would not have attracted the attention of the casual observer and might have been honestly attributed by most dairymen to dust in the air of the stable. For the most part tuberculosis would not have been suspected in the case of these animals had they not been tested with tuberculin, a test, as it is said, not usually made by the farmer until there is grave cause for the suspicion of tuberculosis.

In making these tests normal fresh milk, free from tuberculosis, was soiled with about as small a mass of feces as would enter the milk in a dairy stable in which average cleanliness was observed. This milk was then injected into guinea-pigs and it was found upon post-mortem examination that 16 of the 46 killed had developed tuberculosis. It is concluded from these researches that milk from tuberculous cows with unaffected udders is free from infection until it has become contaminated with feces or some other material that contains tubercle bacilli from the outside of the cows or from their environment. It is not believed that tubercle bacilli are eliminated with the milk from tuberculous cows unless disease of the udder or structures connected with it is present. This conclusion is drawn from the present series of investigations and is supported by earlier work relative to the milk of tuberculous cows. The present investigations include only a few cows and a comparatively small number of guinea-pigs. The earlier investigations extend over a dozen years, during which milk from scores of tuberculous cows was injected into the abdominal cavities of hundreds of guinea-pigs.

The observations made are said to definitely show that the frequency with which milk contains tubercle bacilli is greatly underestimated, especially when it is milked in the customary way from tuberculous cows with healthy udders, or from entirely healthy cows in a tuberculous environment.

As no means are known by which it can be determined when cattle become dangerous to the health of persons or animals, every cow affected with tuberculosis must be regarded, in the opinion of the Government experts, as positively dangerous. In view of the undoubted presence of tuberculosis in a very large number of cattle, whose owners have no cause to suspect that this is so, it is urged that every cow should be periodically tested with tuberculin. Every cow that reacts and thus *shows that* she has tuberculosis should at once, regardless of her general *appearance* or condition, be removed from use as a dairy cow and from *all contact with* dairy cattle or healthy animals.

CALIFORNIA STATE BOARD OF HEALTH.

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VITAL STATISTICS FOR JULY.

Summary.—For July there were reported 2,190 living births; 2,540 deaths, exclusive of stillbirths; and 2,134 marriages. For an estimated State population of 2,001,193, these figures give the following annual rates: Births, 12.9; deaths, 14.9; and marriages, 12.6. The corresponding rates for June were 12.1, 14.2, and 14.9.

The following counties led in the number of marriages: Los Angeles, 444; San Francisco, 387; and Alameda, 302. Next in order were: Santa Clara, 92; Sacramento, 82; Marin, 65; and Orange and San Diego, each 59.

The freeholders' charter cities with the highest number of births were: San Francisco, 417; Los Angeles, 360; and Oakland, 152. Next in order were: Berkeley, 50; San José, 48; Sacramento, 45; Pasadena, 40; Alameda, 38; San Diego, 37; Fresno and Santa Cruz, each 28; and San Bernardino, 25.

The cities with the greatest number of deaths were: San Francisco, 533; Los Angeles, 321; and Oakland, 146. Next in order were: Sacramento, 55; San Diego, 42; Alameda, Pasadena, and San José, each 37; Fresno and Stockton, each 29; and Berkeley and San Bernardino, each 27.

Causes of Death.—There were 380 deaths, or 15.0 per cent of all, from diseases of the circulatory system (heart disease, etc.), and 367, or 14.5 per cent, from tuberculosis of the lungs and other organs. The proportions for heart disease and tuberculosis were each slightly higher for July than for June. In July there were 240 deaths from diseases of the nervous system, 57 being from meningitis, and 184 from diseases of the respiratory system, 111 being from pneumonia and bronchopneumonia. The proportions for these classes of diseases were each somewhat less for July than for June.

Typhoid fever, as usual, was the most fatal epidemic disease in the month, the per cent of total deaths from this disease being 2.1 for July, against 1.5 for June, and 1.1 for May. The deaths from epidemic diseases in July were as follows: Typhoid fever, 54; diphtheria and

croup, 34; whooping-cough, 22; measles, 17; influenza, 8; scarlet fever, 7; and all others, 18.

The following table gives the number of deaths from certain principal causes for July, as well as the proportions from each cause per 1,000 totals deaths for both July and June:

Cause of Death.	Deaths: July.	Proportion per 1,000.	
		July.	June.
ALL CAUSES	2,540	1,000.0	1,000.0
Typhoid fever	54	21.3	15.4
Malarial fever	1	0.4	2.6
Smallpox	2	0.8	....
Measles	17	6.7	10.2
Scarlet fever	7	2.8	5.1
Whooping-cough	22	8.7	9.0
Diphtheria and croup	34	13.4	10.7
Influenza	8	3.2	4.3
Other epidemic diseases	15	5.9	6.4
Tuberculosis of lungs	306	120.5	118.6
Tuberculosis of other organs	61	24.0	21.8
Cancer	135	53.1	54.2
Other general diseases	90	35.4	35.9
Meningitis	57	22.4	23.5
Other diseases of nervous system	183	72.0	80.2
Diseases of circulatory system	380	149.6	149.0
Pneumonia and broncho-pneumonia	143	56.3	70.8
Other diseases of respiratory system	41	16.1	22.6
Diarrhea and enteritis, under 2 years	90	35.4	32.0
Diarrhea and enteritis, 2 years and over	36	14.2	11.5
Other diseases of digestive system	152	59.8	47.4
Bright's disease and nephritis	146	57.5	57.2
Childbirth	21	8.3	10.2
Early infancy	92	36.2	38.0
Suicide	66	26.0	19.2
Other violence	245	96.5	91.3
All other causes	136	53.5	52.9

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases for the several geographic divisions of the State in July:

Geographic Division.	Deaths: July.						
	All Causes.	Epidemic Diseases.	Tuberculosis (All Forms).	Diseases of Nervous System.	Diseases of Circulatory System.	Diseases of Respiratory System.	All Other Causes.
THE STATE	2,540	160	367	240	380	184	1,209
Northern California	347	32	43	37	59	15	161
Coast counties	189	14	20	27	32	8	88
Interior counties	158	18	23	10	27	7	73
Central California	1,480	88	185	124	236	125	722
San Francisco	533	30	50	41	102	64	246
Other bay counties	322	17	45	25	56	29	150
Coast counties	199	16	23	22	28	13	97
Interior counties	426	25	67	36	50	19	229
Southern California	713	40	139	79	85	44	326
Los Angeles	507	33	89	48	63	33	241
Other counties	206	7	50	31	22	11	85

PLAGUE.

Five cases of plague occurred in San Francisco during the first half of August, all of them near the docks. One case was a sailor from the steamer "Samoa," plying between California points. He had spent but thirty minutes on shore for a month, and the vessel being rat-infested, he no doubt received his infection from them. The steamer was ordered into quarantine and thoroughly disinfected and crew retained.

The other cases lived near the docks in cheap, temporary shacks, built after the fire. All infection in them has been destroyed. All coast-wise and deep-water ships will be sulphured for the destruction of vermin, a close watch kept on all deaths that can, in any way, be regarded as suspicious, a destruction of possibly infected goods where cases occur, a thorough disinfection of infected places, and rats destroyed. Although a few more cases may occur, the active steps being taken will, we feel sure, soon stamp out the infection.

PROFESSOR JAFFA.

The appointment of Prof. M. E. Jaffa as Director of the Pure Food Laboratory of the State has been received with unusual approval. It at once gives the department a standing that would take months of hard work to attain with a man less favorably known. The regard which the General Government feels for Professor Jaffa is shown by the Secretary of Agriculture personally asking him to take part in the work which they are now doing to solve the question of sulphuring fruit. In this work Professor Jaffa will be able to aid not only the State, but the Nation, with his thorough knowledge of the subject, and his great ability at arriving at safe conclusions from investigations.

TESTS OF DR. LEININGER'S SOLIDIFIED FORMALDEHYDE.

By Margaret Henderson,
Assistant in the State Hygienic Laboratory.

Dr. George Leininger's Solidified Formaldehyde, according to the pamphlet which sets forth its merits,* is "a pure, concentrated, solidified product which is possessed, when volatilized by the simplest process possible—that of superheating in an open receptacle with the flame of an alcoholic lamp—of the agent's full potencies and properties that render it invaluable for the double purpose of sanitary and thereapeutic adaptation." The series of tests which we applied to it were designed only to test its efficiency as a room disinfectant, under the ordinary conditions of house disinfection.

The solidified formaldehyde is an unctuous paste of about the consistency of mutton tallow, and has a strong smell of formaldehyde. The directions for its use given in the pamphlet are as follows: "Close all doors and windows, and carefully stop all avenues through which the gas may find escape—grates, stovepipe holes, registers, etc., should be tightly sealed; remove vessels containing any quantity of water, to avoid unnecessary absorption of the gas; suspend blankets and other

*Solidified Formaldehyde: Its Sanitary and Therapeutic Employment, with Reports of Bacteriologic tests and therapeutic results.

bedding over chairs to give the formaldehyde gas as free access thereto as possible. * * * When the contents of the room are few and of such character as to present no obstacles to the access of the gas to the germs, less than one half of one ounce will suffice to formalize 1,000 cubic feet of space."

The test disinfecting was done according to these suggestions under a variety of conditions approximating as nearly as possible the varied conditions met in house disinfection. The test objects were bits of filter paper, about 1 mm. square, sterilized in petri dishes, then inoculated with twenty-four hour bouillon cultures of the organisms used, dried for two hours in the incubator, exposed to the gas in the opened petri dishes, and then at the end of the exposure planted in bouillon. The bouillon was always incubated for forty-eight hours at 37° C.

I started out by using just twice the amount of formaldehyde recommended for ordinary purposes. The results of the experiments with this amount of formaldehyde, one ounce per 1,000 cubic feet, are shown in tables 1, 2, 3 and 4 in detail, and summed in table 5.

TABLE I.

(In an air-tight room.)

Space, 348 cubic feet.
Formaldehyde, 10.8 gr. (1 ounce per 1,000 cubic feet.)
Water, 21.6 cc.
Time for volatilizations of formaldehyde, 28 minutes.
Organisms: B. typhosis; Ps. pyocyanea; M. pyogenes aureus; B. anthracis; B. subtilis.
Time of exposure, 3 hours.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	36	36	0
Under 1 layer of blanket	3	1	2
Under 1 layer of sheet	22	14	8
Totals	61	51	10

TABLE II.

(In an ordinary loosely built room.)

Space, 1,704 cubic feet.
Formaldehyde, 52.5 gr. (1 ounce per 1,000 cubic feet.)
Water, 104 cc.
Time for volatilization, 1 hour.
Organisms used: Same as in Table I.
Time of exposure, 3 hours.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	48	21	27
Under 1 layer of quilt	48	11	37
Under 2 layers of quilt	48	3	45
Under 1 layer of carpet	24	9	15
Totals	168	44	124

TABLE III.

(In a rather tightly built room.)

Space, 979 cubic feet.
Formaldehyde, 30.3 gr. (1 ounce per 1,000 cubic feet.)
Water, 60.0 cc.
Time of volatilization, 20 minutes.
Exposure, 3 hours.
Organisms: B. subtilis; B. typhosis; B. coli; M. pyogenes aureus; Ps. pyocyanea.
Temperature, 25.6° C.
Humidity (at beginning of exposure), 93%.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	61	39	22
Under 1 layer of blanket	19	14	5
Under 2 layers of blanket	20	7	13
Under 2 layers of sheet	20	10	10
Under 3 layers of sheet	20	9	11
Under 4 layers of sheet	20	5	15
Totals	160	84	76

TABLE IV.

(In a room of dwelling house.)

Space, 1,041 cubic feet.
Formaldehyde, 32.3 gr. (1 ounce per 1,000 cubic feet.)
Water, 32 cc.
Time for volatilization, 25 minutes.
Organisms: B. subtilis; B. typhosis; B. coli; M. pyogenes aureus; Ps. pyocyanea; B. prodigiosus.
Exposure, 24 hours.
Temperature, 16° C.
Humidity (at beginning), 78%.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	17	15	2
Under 1 layer of blanket	18	11	7
Under 2 layers of blanket	17	12	5
Under 3 layers of blanket	15	9	6
Under 4 layers of blanket	18	10	8
Under 2 layers of sheet	16	12	4
Under 4 layers of sheet	16	11	5
Under 6 layers of sheet	17	12	5
Under 8 layers of sheet	15	12	3
Totals	149	104	45

TABLE V.

(1 ounce per 1,000 cubic feet.)

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	162	111	51
Under 1 layer of blanket	88	47	41
Under 2 layers of blanket	83	32	51
Under 3 layers of blanket	15	9	4
Under 4 layers of blanket	18	10	8
Under 2 layers of sheet	58	36	22
Under 3 layers of sheet	20	9	11
Under 4 layers of sheet	36	16	10
Under 6 layers of sheet	17	12	5
Under 8 layers of sheet	15	12	3
Under 1 layer of carpet	24	9	15
Totals	536	303	231

In the test shown in Table I, the room was an air-tight one arranged in the laboratory; in the rest, the rooms were of the ordinary dwelling-house sort, with plastered walls, and ordinarily tight doors and windows. All openings were closed, but the windows and doors were not sealed.

The greatest difficulty arose in knowing when to open the room to take out the generator. In one case it took twenty minutes, and in one case one hour, to volatilize the formaldehyde, instead of the ten

minutes to the ounce given as the usual time in the pamphlet. This slowness in volatilization led to considerable loss in formaldehyde, because the door had to be opened several times during the process to see whether it was yet completed. The danger of fire led to great unwillingness to leave it longer than was entirely necessary.

The results of these four experiments would tend to show that Solidified Formaldehyde is only an indifferent surface disinfectant, sterilizing but 67 per cent of the test objects when used in the proportion of 1 ounce to 1,000 cubic feet, and can not be depended on at all for penetration.

The last experiment was tried with a larger amount of formaldehyde, 2 ounces per 1,000 cubic feet, or four times that recommended by the pamphlet (page 3) for surface disinfection, and the maximum recommended "when unusual permeating potency is demanded, sufficient to kill bacteria protected by several folds of blanket." Table VI gives the results of this experiment:

TABLE VI.

(In a room of dwelling house.)

Space, 778 cubic feet.
Formaldehyde, 48.28 gr. (2 ounces per 1,000 cubic feet.)
Water, 48 cc.
Time of volatilization, 30 minutes.
Exposure, 24 hours.
Organisms: Same as in Table IV.
Temperature, 16° C.
Humidity (at beginning), 78%.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	37	37	0
Under 1 layer of blanket	16	10	6
Under 2 layers of blanket	17	12	5
Under 2 layers of sheet	17	15	2
Under 4 layers of sheet	18	13	5
Under 6 layers of sheet	15	12	3
Under 1 layer of carpet	11	7	4
Totals	131	106	25

All of the thirty-seven test objects exposed on the surface were sterilized, but the penetration was scarcely better than with the other set of experiments, even though the exposure was much longer and the formaldehyde was volatilized quickly.

I would conclude then that, so far as our experiments go, Dr. Leininger's Solidified Formaldehyde seems to be an efficient surface disinfectant when used in the proportion of at least two ounces per 1,000 cubic feet, but can not, at that proportion, be depended on for any penetration. The fire risk in using it is not to be disregarded.

The probability that much of the disinfecting done is not at all effective is clearly shown by the above report. The solid formaldehyde generators, of which the Leininger is a type, are quite generally used throughout the State, and a belief that they were not effective, especially with the amount of material used, led to the series of tests which is reported Health officers will note the fact that the penetrating power is small, and if they continue to use this method, instead of the *permanganate of* potash method, much larger quantities must be used.

FLY TIME.

Although, owing to our mild climate, which is almost perpetual spring, flies are always with us, during the summer months there are more of them, hence the greater need of care. The fact that flies are one of the greatest causes of the spread of disease can not be too strongly impressed upon both health officers and people. There is nothing too filthy for them to wallow in, and, covered with the dirt and disease germs, they seek human companionship and insist on most intimate associations. They delight to bathe in our milk and scrape their feet on our food, leaving not only the accumulated filth, but other more nasty "spots."

Lighting, as they delight to do, upon open sores on man or beast, and covering themselves with the discharges and the excrement of the sick and then coming to us, is it any wonder that disease spreads? Why should we tolerate the fly? Why not banish him from our towns? Why furnish him a convenient breeding place? We know they breed in manure. Why allow it to be piled up, for no other apparent reason than that the flies can breed? Every city and town should have ordinances requiring all manure to be put in tight receptacles and removed at least every two or three days, and the health department should see that they be enforced. If this could be, a great step would be taken toward preventing the spread of disease.

Professor Woodworth, Entomologist of the State University, is anxious to have some town pass ordinances against flies, and allow him and his body of able assistants to study the situation and help to make a "flyless town." What a popular place it would be!

SICK RABBITS.

The public press gives information that the rabbits of Oregon are dying off with some infectious disease, and that some of them are being taken to Australia with the hope that they will give the disease to their kin in that country, and so relieve it of what has been a veritable pest. The United States Department of Agriculture is also reported as investigating the disease to find out its cause and history.

That the rabbits on the Pacific Coast and in Australia have been a drawback to agriculture there is no doubt, and their riddance would be a blessing, unless it comes at too great a cost. The rabbit is a rodent, and like others of its kind is subject to plague, and while the probabilities are against it, it is possible that this disease is no other. Should it prove to be plague, or some other disease that is fatal to man, the greatest care would have to be exercised or the human family would become infected. For this, as well as purely agricultural reasons, the nature of the trouble should be studied.

While the Department of Agriculture is investigating the cause of death in the rabbits of Oregon, we would call its attention to the fact that the squirrels of California are as much of a damage to agricultural crops as are the rabbits, and that in parts of the State they have died off completely from some disease. Large tracts of country are now free of them which a few years ago were overrun. The gain to farmers has been great, but several cases of plague were traced with great

certainty to the squirrels, so the relief is not an unmixed blessing. While at present the disease is not active, it may flame up at any time, when we shall hope for the same activity on the part of the United States Department of Agriculture in studying the disease as is shown in the disease among the rabbits of Oregon.

RAT-PROOF BASEMENTS.

We would like to suggest to the city government of San Francisco the advisability of passing an ordinance requiring that all business blocks be made rat-proof. It will pay by saving the immense destruction they cause, and we must not forget the danger of the rat as a carrier of disease.

A HINT TO CALIFORNIA MILLIONAIRES.

Senator Redfield Proctor, of Vermont, is reported as spending $100,000 to build, and another $100,000 to endow, a tuberculosis sanatorium in that State.

For the good of mankind, the expenditure of a fortune in teaching how to cure, and better, how to avoid, tuberculosis, is far ahead of endowing an institution where arts and sciences can be learned. Education without health is of little use, and our country is already crowded with institutions for higher education.

With one in every seven dying of consumption, a disease which can be avoided and sometimes cured, there is certainly great need of properly conducted sanatoria where the infected ones can go, both for treatment and for instruction. Senator Proctor deserves, and will doubtless receive, the highest esteem of his State, for in no way could he use his wealth to such good advantage as in combating a disease that is more terrible in its effect than any other with which we have to deal. May the Senator live long to see the good results of his charitable work.

CALIFORNIA STATE BOARD OF HEALTH.

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VITAL STATISTICS FOR AUGUST.

Summary.—For August there were reported 2,176 living births; 2,501 deaths, exclusive of stillbirths; and 1,760 marriages. For an estimated State population of 2,001,193, these figures give the following annual rates: Births, 12.8; deaths, 14.7; and marriages, 10.4. The corresponding rates for July were: 12.9, 14.9, 12.6.

Marriages were reported for the principal counties as follows: Los Angeles, 377; San Francisco, 348; Alameda, 219; Santa Clara, 86; Sacramento, 77; San Diego, 60; and Fresno, 52.

Births, so far as registered, were as follows for freeholders' charter cities: Los Angeles, 399; San Francisco, 380; Oakland, 181; Sacramento, 59; Fresno, 46; Pasadena, 42; Berkeley, 35; San José, 31; and Alameda and San Diego, each 30.

Deaths occurred as follows in the leading cities: San Francisco, 490; Los Angeles, 329; Oakland, 154; Sacramento, 58; San Diego, 41; Berkeley, 37; San José and Stockton, each 28; and Alameda, 26.

Causes of Death.—There were 367 deaths, or 14.7 per cent of all, from tuberculosis, 313 being from tuberculosis of the lungs and 54 from tuberculosis of other organs. Diseases of the circulatory system (heart disease, etc.) caused 346 deaths, or 13.8 per cent of all. In July there were 285 deaths from diseases of the digestive system, 119 being deaths of infants under 2 years of age from diarrhea and enteritis. There were 233 deaths from diseases of the nervous system, 53 being from meningitis; and 163 from diseases of the respiratory system, 107 being from pneumonia and broncho-pneumonia.

Typhoid fever, as usual, was the most fatal epidemic disease in the month, though the per cent of all deaths due to this disease was only 1.9 for August against 2.1 for July. The deaths from epidemic diseases in August were as follows: Typhoid fever, 47; diphtheria and croup, 29; whooping-cough, 16; measles, 14; malarial fever, 9; plague, 6; scarlet fever, 5; and all others, 10.

The following table gives the number of deaths from certain principal causes for August, as well as the proportions from each cause per 1,000 total deaths for both August and July:

Cause of Death.	Deaths: August.	Proportion per 1,000.	
		August.	July.
ALL CAUSES	2,501	1,000.0	1,000.0
Typhoid fever	47	18.8	21.3
Malarial fever	9	3.6	0.4
Smallpox	----	----	0.8
Measles	14	5.6	6.7
Scarlet fever	5	2.0	2.8
Whooping-cough	16	6.4	8.7
Diphtheria and croup	29	11.6	13.4
Influenza	2	0.8	3.2
Plague	6	2.4	----
Other epidemic diseases	8	3.2	5.9
Tuberculosis of lungs	313	125.1	120.5
Tuberculosis of other organs	54	21.6	24.0
Cancer	168	67.2	53.1
Other general diseases	80	32.0	35.4
Meningitis	53	21.2	22.4
Other diseases of nervous system	180	72.0	72.0
Diseases of circulatory system	346	138.3	149.6
Pneumonia and broncho-pneumonia	107	42.8	56.3
Other diseases of respiratory system	56	22.4	16.1
Diarrhea and enteritis, under 2 years	119	47.6	35.4
Diarrhea and enteritis, 2 years and over	33	13.2	14.2
Other diseases of digestive system	133	53.2	59.8
Bright's disease and nephritis	138	55.2	57.5
Childbirth	22	8.8	8.3
Early infancy	96	38.4	36.2
Suicide	56	22.4	26.0
Other violence	247	98.7	96.5
All other causes	164	65.5	53.5

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases for the several geographic divisions of the State in August:

Geographic Division.	Deaths: August.									
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Violence	All Other Causes
THE STATE	2,501	136	367	168	233	346	163	285	303	500
Northern California	321	21	27	12	42	38	14	29	70	68
Coast counties	139	9	15	4	29	21	6	12	16	37
Interior counties	182	12	12	8	13	17	8	17	54	31
Central California	1,374	77	183	96	129	193	107	169	161	259
San Francisco	490	28	68	45	33	83	43	57	51	82
Other bay counties	377	21	52	26	35	52	38	50	37	66
Coast counties	158	7	21	10	20	32	7	17	15	29
Interior counties	349	21	42	15	41	26	19	45	58	82
Southern California	806	38	157	60	62	115	42	87	72	173
Los Angeles	616	25	125	49	47	92	27	69	55	127
Other counties	190	13	32	11	15	23	15	18	17	46

PLAGUE.

It is greatly to be regretted that such unwarranted and seemingly malicious reports have been published regarding the plague in San Francisco. If not published with the express purpose of injuring that city they are the result of gross misinformation, which should not be expressed on such a serious question.

The fact that plague is widespread over the world, especially in the far East, that it is a rat disease, and that rats will travel wherever commerce goes, are pretty well understood. That any city, however small, that has any pretense to being a commercial port is liable to infection is admitted by every one who has studied the disease. This liability, of course, is in proportion to the amount of trade, and if the latter is at all extensive, the city will some time have the infection, but there is a great possibility that it will be unrecognized. The only safety of any city is being constantly on guard and absolute truthfulness as to the existence of the disease.

Both of these conditions pertain at present in San Francisco. The city is divided into districts, each of which is under the direction of a trained physician with inspectors, and no case escapes and every one discovered is reported and published.

At this time (September 21st), there have been 36 verified cases, with 22 deaths since August 12th—certainly not enough to constitute an epidemic, nor to cause undue anxiety when it is known that everything possible is being done to eradicate the disease. Rats are being trapped and poisoned and all infected localities disinfected. No ship is allowed to leave the city without fumigation for the purpose of killing vermin, and it is highly improbable that the disease will leave that port by that means. The river steamers are also being fumigated to protect the inland towns.

The United States Public Health and Marine Hospital Service, and the State and City Boards of Health are working in absolute harmony, with Dr. Blue of the United States Service in command.

The Bulletin will continue to tell the exact truth about the situation, believing that the people have a right to know it, and that it is best that they should.

They should remember, however, that they have a duty to perform in the eradication of the disease. It is spread almost entirely by rats, the watchfulness of the health departments preventing infected persons exposing others to any great extent. It is no small task to kill the rats of a city, and can only be done by the united effort of every one. If each householder will see that they are killed on his premises there will soon be none and the disease will stop. The expense is light to each one, but for a city to do this work will cost a great amount and the results will not be equal to those attained if every one takes a hand. To be successful in either trapping or poisoning, food must be kept from them. In other words, all garbage and swill must be kept in covered receptacles where rats can not get at it. This should be done in any case, but when it is desired to catch rats it is imperative.

The following is from the United States Public Health Reports:

THE CAUSATION AND PREVENTION OF PLAGUE.

The following extracts are from a series of lectures on plague delivered June last before *the Royal College of* Physicians of London by Dr. W. J. R. Simpson, pro-

fessor of hygiene at King's College, London, and government commissioner to inquire into the causes and continuance of plague in Hongkong, 1902:

Modes of Dissemination of Plague and Channels of Infection.—It is now accepted that the importation of plague into a healthy locality can be effected by an infected human being, or an infected rat, or infected clothes. Observations have been so numerous as regards these agencies as to remove all doubt on this point. Dr. E. E. Klein has further shown by some important experiments that infected grain may also be an agent in the importation of the disease. By feeding rats and guinea pigs with grain which had been contaminated with old cultures of plague, and which was then dried, he was able to cause plague in those animals, so that grain which has been infected with infective material from plague rats or human beings may, on importation into a healthy seaport, give plague to healthy rats on shore which eat the contaminated portions of the grain. The association of corn ships with plague is a very old one. In recent years the association has been ascribed almost wholly to plague rats on board ship which have left the ship and infected healthy rats on shore, but now infected grain must be added as a likely agent.

Once imported, the dissemination of the disease is effected by similar agents as those bringing about importation. Rats, clothes, human agency, and food play their respective parts. It is now almost universally admitted that, except in pneumonic cases, rats are the principal agents in the dissemination of the disease, though personal contact, as in typhoid fever, also plays its part. They bring the infection into houses connected with their subterranean passages. In Hongkong one could trace many of the subterranean passages with their infected rats and their connection with the distribution of the disease in the houses. A systematic bacteriological examination of rats trapped and found dead proved that plague in the rats of the locality preceded plague in man. So constantly did this occur that as soon as plague-infected rats were discovered measures were introduced, as in Cape Town, but on a more extended and systematic basis, of treating the house or locality as plague infected. In other words, a policy of forestalling plague was adopted. The precedence of rat plague in relation to plague epidemics was observed in Bombay, the Punjab, Calcutta, South Africa, Australia, and southern China. The value of the Hongkong observations lay in the direct evidence obtained by scientific and precise methods not only of the direct relationship which the precedence of rat plague bore to human plague, but also of the important rôle which the rat plays in the spread of the disease from house to house and in groups of houses. Similar observations were made by Dr. J. Ashburton Thompson, in Sydney, but under different conditions. The Sydney outbreaks are comparatively mild, the mortality being under 40 per cent, and consists mainly of bubonic cases with but few septicæmic cases. Probably the type in Sydney was the same as that met with in Cape Town, where one of the marked features was absence of cerebral symptoms and intestinal disorders, differing in this respect from the type met with in Poona in 1897, but which in 1907 seemed to me to have changed, presenting fewer nervous symptoms. The Hongkong outbreaks are exceptionally virulent, the mortality being over 80 and 90 per cent and with a large percentage of septicæmic cases.

The problem of the dissemination of the disease by rats is not solved by simply proving that rats are infected with plague in a house or locality before human beings, or by the fact that if measures are taken to dispose of the infected rats human plague will not occur, and, vice versa, if no measures are taken plague will attack some of the inmates of the house. The question naturally arises, How is the infection of the rat transferred to man? There are two views and the upholders of each have a tendency to claim that theirs is the only way. The more that is learned of plague the more it is evident that there is no only way.

The Flea Theory.—Dr. Ashburton Thompson had exceptional opportunities of studying the small outbreaks in Sydney and on that study he came to the conclusion that Simond's theory that the flea on the rat, leaving the rat dead from plague and then biting man, transfers plague from the rat to man, explained the phenomena connected with plague. That theory, of which Dr. Ashburton Thompson is the champion, has recently received very valuable support in its favor from the very important experiments made by the Indian plague commission and which are the outcome of certain researches by Capt. W. G. Liston, I. M. S., to whom much credit is due for his excellent work in this direction. These experiments established first the accuracy of Simond's and Gauthier's and Raybaud's experiments as to the power of infected fleas from plague rats causing plague in healthy rats. * * * On the other hand, taking the most liberal interpretation of the flea theory based on the experiments mentioned, it is doubtful whether the flea theory will account for more than a certain percentage of the fatal bubonic cases which may vary in different circumstances in different localities. * * *

The Food Theory.—More post-mortem examinations are made on plague cases in Hongkong than in any other part of the world, and it is on the observations there both on man and animals that the theory has been formulated that the ingestion of *food contaminated* with the plague virus is the cause of septicæmic cases of *plague.* * * *

Measures to Protect Healthy Districts.—A careful inspection of crates filled with goods from infected localities should be arranged for in order that any dead or sick rats may be immediately discovered and disposed of in a safe manner and the contaminated portion of the goods disinfected; for the same reason an inspection of fodder and loads of grain from infected localities is necessary. The warehouses attached to railways and docks require to be especially watched; also granaries, stables, slaughterhouses, and markets, where rats from infected localities are likely to be imported and spread infection among indigenous rats or where contaminated goods infect healthy rats.

Measures in Infected Localities.—With regard to infected areas the only measures on a large scale available are inoculation, evacuation, and disinfection of infected houses and destruction of rats. * * * Evacuation of an infected locality and inoculation promptly carried out will stop any epidemic. In Cape Town plague was becoming serious among the Kaffirs. It was decided to remove them from their dwellings, where they were crowded together under most insanitary conditions, as bad as, if not worse than, any in India. In the course of a week from 7,000 to 8,000 were removed to a small village prepared for them and all were innoculated. The epidemic ceased among them, and although after two or three days' rest, in order that they should recover from the malaise caused by the inoculation, they came in regularly to Cape Town and often worked in infected portions of the town, they remained free from the disease.

In an infected area the measures to be adopted are controlled to some extent by circumstances. In some localities all the measures mentioned can be brought to bear, and of course these are the best conditions for success; but if plague is in a village where there are no means of disinfecting the huts and destroying the rats during the process of disinfection, then evacuation and inoculation are the only measures that can be practiced, and if inoculation is carried out the evacuation need only be as long as is necessary to allow of time for the inoculations.

Doctor Simpson recommends the exposure of grain to the sun, boiling the infected clothing, and general destruction of rats; and he insists particularly on fumigation by sulphur for the destruction not only of plague germs, but of all rats, fleas, bugs, and other insects in houses. On this subject he says:

"Everything is disinfected *in situ*; the only articles that require to be removed are such foodstuffs as flour, fresh fruits, fish, and meat. Rice and grain need not be removed and would be disinfected along with the other contents of the house. * * * In the case of a plague patient being in the house and objections being raised to removal to hospital the patient can be made comfortable in a tent during the fumigation and be removed back to the house after twenty-four hours, for with the rats and insects destroyed there would be little danger of the spread of the disease. After the patient had recovered or died the house could be again disinfected."

In conclusion, Doctor Simpson insists on the necessity of the formation of a special and trained plague service for the prevention and mitigation of plague in India.

CALIFORNIA PUBLIC HEALTH ASSOCIATION.

The Fall meeting of the California Public Health Association will be held at Woodland, October 25th.

A program of unusual interest is being gotten out by the officers, and it is greatly to be desired that all health officers be present and take part. All physicians and others interested in public health and sanitation are cordially invited to be present. No dues are charged or plate passed.

The pure food question and the enactment of the law which takes effect on January 1, 1908, will be discussed by Professor Jaffa, Director of the Pure Food Laboratory, and a representative of the Pure Food Commission of the Southern California Medical Society will be present and take part in the discussion. The close proximity of the time when this law goes into effect and its great importance make it an extremely interesting subject.

Dr. H. J. B. Wright, of San José, will have a paper dealing with the experiences of a public health officer. His great experience insures an interesting and profitable half hour.

Tuberculosis will be the theme of Dr. C. C. Browning's lecture, which will be illustrated with the stereopticon. Perhaps no one in the

State is better able to deal in an intelligent manner with this subject than is Dr. Browning, and the fact that California stands at the head of the column of States for the number of deaths from this preventable disease should bring every one of us to the meeting.

Dr. W. F. Snow, head of the Department of Hygiene of Stanford University, has been invited to give an illustrated lecture on some subject relating to public sanitation, and will, no doubt, respond. Other subjects may be introduced, but these will be enough to show that the committee is preparing a feast. Kindly accept this as a personal invitation to be there.

Dr. F. K. Ainsworth, Chief Surgeon of the Southern Pacific Railroad Company, and a member of the State Board of Health, has kindly arranged for half-fare rates on the Southern Pacific Railroad for all city and county health officers and members of boards of health who wish to attend the meeting. Any of these wishing to attend the meeting will notify N. K. Foster, Secretary of the Association, at Sacramento, of their intention to attend, giving their address. These will be forwarded to Dr. Ainsworth, who will send an order for the reduced rates direct to the party. The time limit will be three days prior and three days after the meeting.

THE NEW PURE FOOD AND DRUG LAW.

While it is true that the State Food and Drug Laboratory will not be legally established until January 1, 1908, public interest in the work is manifested by the large number of letters received and the samples submitted for examination and analysis. The most notable recognition of the Laboratory and its importance was shown by the Honorable Secretary of Agriculture, James Wilson, upon his recent visit to California. The Secretary personally requested the coöperation of the Laboratory with the Bureau of Chemistry, United States Department of Agriculture, in connection with its investigation on sulphuring of dried fruits, which is still in progress.

It would appear that this is an opportune time to draw public attention to the McCartney Pure Food and Drug Law passed at the last session of the Legislature and to go into effect on January 1st, next. This thought has been emphasized by some statements appearing in one of the San Francisco journals to the effect that California should take part in the great pure food and drug movement which is agitating the country from one end to the other.

Full and complete copies of the new law may be had upon application either to Dr. N. K. Foster, Secretary of the State Board of Health. Sacramento, or to Prof. M. E. Jaffa, Berkeley.

It might be stated at the outset that every Californian should congratulate himself on the passage of such a law as we now have, and there are many reasons for this.

The State Board of Health and others have been working for years for the enactment of laws which would protect both the consumer and producer. Not only has this been accomplished by the McCartney Act, but by its provisions this State will work in perfect harmony with the Federal authorities in their administration of the National Pure Food and Drug Law of June 30, 1906. Such coöperation is absolutely necessary and highly essential for the success of the pure food and drug movement, and bringing about the best conditions for all concerned. It must not be forgotten that by such action we shall have the maxi-

mum results with the minimum expenditure for the enforcement of the law, which is for preventing the manufacture, sale or transportation of adulterated, mislabeled or misbranded foods, liquors or drugs, and regulating the traffic therein; providing penalties, establishing a laboratory for foods, liquors and drugs, and making an appropriation therefor.

In accordance with the provisions of the new law the examination and analysis of foods and drugs will be made under the supervision of the State Board of Health, which has established its laboratory at the University of California. All can be assured that as far as the analysis and examination of foods and drugs are concerned a broad, liberal and just policy will be pursued with reference to both the producer and consumer.

The law will insure to the consumer articles of food in accordance with the labels thereon; in other words, all foods or food materials will have to be honestly labeled and free from adulterants or preservatives of an injurious kind.

We are very fortunate in that we do not have to make any standard or render any decisions regarding labels, brands, etc., as shown by Section 3 of the Act, which reads: "The standard of purity of foods and liquors shall be that proclaimed by the Secretary of Agriculture of the United States Department of Agriculture." Not only is this with reference to foods, but it also applies to our medicines and drugs. The exact ingredients of any compounded medicine must be stated on the label.

Naturally this will result in a smaller consumption of many of the patent medicines and other nostrums. For instance, when mothers know that certain soothing syrups contain opium, they will be very loth to administer the same to crying babies. Again, there are a large number of patent medicines which in the past have contained a high percentage of alcohol, fully as much, in some cases, as whisky. The Federal law has already accomplished much in stopping such pernicious practices.

The Act is very broad in its scope, as is provided by Section 2, which reads: "The term food, as used in this Act, shall include all articles used for food, drink, liquor, confectionery or condiments by *man* or *other animals,* whether simple, mixed or compounded."

It is thus seen that the food inspection is not confined to the food of man, and it may be stated that the State Laboratory will devote all the attention possible to the end that the cattle and poultry men can feel assured of what they purchase. This policy will be carried out in regard to simple and mixed foods.

The two main lines of work to be taken up by the State Laboratory with reference to food for man and other animals will be, first, the examination for preservatives and coloring matter prohibited by law, and second, the examination of foods for the purpose of ascertaining if they are honestly labeled.

It has been said that the administration of the new law would be broad and liberal, and it may also be stated that the State Board of Health does not intend to confine its labors to merely police work. The investigational and educational side of the question will receive a fair share of attention. That there is a wide field for such efforts is evidenced by

many existing conditions, and a few illustrations will fully bear out this point.

Some years ago the trade demanded a dark colored wine,—why? Not because it tasted any better, but only because it *looked* better. In many cases the natural color of the grapes was not deep enough. The winemen, therefore, in order to satisfy the consumer, added a coloring matter. The law stepped in and prohibited the use of the artificial materials for coloring wines. What is the result? Why, to-day the consumer is perfectly satisfied with a lighter colored wine, he having been educated to the use of such.

Again, the fruitmen, especially those who dry fruits, will have to educate the public to consume fruit not sulphured to the extent to which they have been accustomed. A slight sulphuring of fruit will not materially affect it, but the amount of sulphur often used to produce the golden-colored apricot or peach, or the absolutely white apple from immature fruit is detrimental to the health of the consumer. The latter wants golden yellow fruit and is willing to pay the highest price for it. When the public is educated to undertand that the brown fruit has a finer flavor and is more wholesome the producer and packer will be encouraged to use their best efforts to put dried fruit upon the market containing the least possible amount of sulphur. Similarly as regards dried or desiccated vegetables.

The poultry-raiser also suffers from the whim and fancies of the consumer. This is well illustrated by the fact that the ruling market price for brown-shelled eggs is lower than that for the white-shelled. There is absolutely no reason for such discrimination. A complete and careful investigation, including both chemical and physical analyses, failed to indicate any difference between the nutritive value of the brown- and the white-shelled eggs.

When the public on the Pacific Coast shall be educated to a thorough appreciation of these facts, then will the raisers of poultry laying brown-shelled eggs receive the same encouragement accorded the raisers of poultry laying white-shelled eggs.

In conclusion, it might be well to reiterate that the main object of the law is not to harass or hamper any well-intentioned producer or manufacturer. It is designed to protect the honest manufacturer from the competition of the dishonest one, to insure to the consumer pure, wholesome foods, and to educate and enlighten all sides on the question of pure foods and drugs.

M. E. JAFFA.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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Vol. 3. **SACRAMENTO, SEPTEMBER, 1907.** **No. 4**

STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

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PUBLIC HEALTH ASSOCIATION MEETINGS.

The following program has been issued by the California Public Health Association for the meeting at Woodland on October 25th:

11:00 A. M. Address by President,
Dr. A. E. OSBORNE, Santa Clara, Cal.

11:30 A. M. Experiences of a Health Officer.
Dr. J. B. WRIGHT, San José, Cal.

2:00 P. M. Pure Food.....Prof. M. E. JAFFA, Berkeley, Cal.
(Director Pure Food Laboratory.)

3:00 P. M. Observations of Sanitary Work in Eastern Cities,
Dr. W. F. SNOW, Stanford University.

4:00 P. M. Business Meeting.

7:45 P. M. Tuberculosis. Illustrated lecture,
Dr. C. C. BROWNING, Monrovia, Cal.

All health officers and members of boards of health wishing to attend should send their names and official position to the Secretary, Dr N. K. Foster, at Sacramento, who will forward them to Dr. F. K. Ainsworth, Chief Surgeon of the Southern Pacific Railroad, who will furnish half-fare rates, good for five days before and five days after the meeting. With an excellent program and cheap rates this should be the fullest meeting we have ever had.

* * * * *

The Health Officers of Southern California held a meeting and banquet at the Alexandria Hotel, Los Angeles, September 28th, and organized with the following officers: Dr. C. C. Valle, of San Diego, President; Dr. Stanley P. Black, of Pasadena, Vice-President; Dr. W. W. Roblee, of Riverside, Secretary and Treasurer.

Every one interested in public health matters is admitted to membership.

During the session, which began at 10 o'clock, papers relating to milk were read by Dr. A. E. Rishel, chief inspector of the Bureau

of Animal Industry; George W. Hood, milk inspector; E. H. Miller, city chemist of Los Angeles; Dr. L. M. Powers, health officer of Los Angeles; Dr. George H. Kress, of the California State Medical Society; and Dr. Stanley P. Black, of Pasadena.

As the health officers of the south are in no way behind in the usual energy shown in that part of the State, this association will be a power for good. They will work now with organization instead of as individuals, laws will be drawn that are uniform, and mutual assistance rendered in the enforcement. The semi-annual meetings will be a means of bringing the health officers into closer relations with each other, and with better acquaintance and the discussions of topics of interest to all, each one will be stronger and better equipped for his work.

* * * * *

The third semi-annual session of the Central California Health Officers' Association met in the rooms of the Board of Health in Fresno, October 8th. The program was short, but more than made up in quality if it lacked anything in quantity.

The first paper was on Vaccination, by Dr. S. W. R. Langdon, Health Officer of Stockton. He traced the terrible path of smallpox from the earliest historical times, and told of the millions who died yearly. This was contrasted with the time succeeding the introduction of vaccination, when, in well-vaccinated countries, smallpox almost entirely disappeared.

Dr. T. M. Hayden, Health Officer of Fresno, presented a paper on Milk. The doctor contends, and rightly, that the human mother should furnish a proper supply of milk for her own young, but as she does not, it is no less than criminal to furnish the child a supply full of filth from the stable. He outlined rules that would give better results and lessen the morbidity and mortality of the State.

The discussion of the papers was interesting and showed the deep interest taken in the questions by the health officers.

The San Joaquin Valley Medical Association voted to make the Central California Health Officers' Association an auxiliary of its society and devote a part of each meeting to hearing its papers. This will broaden its influence and be the means of closer union of health officers and physicians.

ANTI-PLAGUE OPERATIONS IN SAN FRANCISCO.

Herewith are presented extracts from recent reports of the anti-plague operations in San Francisco, showing the work done in districts for the weeks specified:

WORK DONE IN DISTRICTS.

Week ended October 5, 1907—
Number of sick inspected, 48; plague, 0; suspicious, 18; negative, 30.
Number of dead inspected, 95; plague, 0; suspicious, 5; negative, 90.
Number of premises inspected, 4256.
Number of houses disinfected, 371.
Number of houses destroyed, 261.
Number of nuisances abated, 458.
Number of rats found dead, 630.
Number of rats trapped, 318.
Number of blocks covered with Danysz' virus, 0.
Number of poisons placed, 6535.
Number of inspections of contacts, 59.

Week ended October 12, 1907—
Number of sick inspected, 50; plague, 3; suspicious, 11; negative, 36.
Number of dead inspected, 49; plague, 8; suspicious, 3; negative, 38.
Number of premises inspected, 4773.
Number of houses disinfected, 98.
Number of houses destroyed, 80.
Number of nuisances abated, 340.
Number of rats found dead, 628.
Number of rats trapped, 862.
Number of blocks covered with Danysz' virus, 0.
Number of poisons placed, 14,367.
Number of inspections of contacts, 47.

Respectfully,
RUPERT BLUE,
P. A. Surgeon, Commanding.

THE PLAGUE.

The plague situation in California has not materially changed since the last issue of the Bulletin. Cases have appeared with considerable regularity, so that to date (October 15th) there are 73 verified cases and 44 deaths. As the disease is disseminated by rats and mice, no great diminution of cases could be expected until these vermin are greatly diminished. This is being done as rapidly as possible, and, considering all the difficulties to be overcome, remarkable progress has been made. In San Francisco, where the refugee camps and numberless small shacks that sprang up after the fire gave the rats an ideal place to live near the human inhabitant, it is really a wonder that more cases have not occurred.

Outside of San Francisco cases have been found—1 in Point Richmond and 3 in Oakland. The infection in these cases may have been local, or from outside, but the same work is being done as if it were known to be local. Oakland is doing strenuous work in cleaning up and killing rats, which work, besides lessening the danger of plague, will lessen the danger from other diseases. The other cities are also awakening to the necessity of cleaning up, and are active in that direction.

In order to prevent the spread of plague, all vessels of whatever nature in San Francisco Bay and its tributaries are being fumigated with sulphur to kill vermin. This is repeated every fourteen days, and there is but little probability of rats being carried away by boats, but the possibility must be recognized, and every town should take steps to clean up and kill off the rats. The individual householder should see that his place is clean and that no rats are allowed to live with him.

ABSTRACT OF REPORT ON PLAGUE INVESTIGATIONS IN INDIA.

Issued by the Advisory Committee appointed by the Secretary of State for India. The Royal Society and the Lister Institute. The Journal of Hygiene, Vol. 6, No. 4. Sept. 1906. American Agents: G. P. Putnam's Sons.

The introductory chapter records the conclusions of a number of investigations on the subject of rats and rat fleas, in their relation to the dissemination of plague. Practically unanimously, the students of the epidemiology of plague regard the existence of plague among rats as of significance in connection with the spread of plague in man. The human outbreak is always preceded by an epizootic of plague in rats. The manner by which the transmission from rat to man is brought about is an important problem to be elucidated. The literature

of plague contains frequent references, indicating that the writer had in mind the possibility that suctorial insects spread the infection. Various workers have reported experiments in which plague was transmitted under conditions indicating that fleas were the agent of transmission.

The common flea of rats of India and Australia is *Pulex cheopis*. It has been shown that this species will, upon the death of a rat, desert it for an unusual host, such as guinea-pigs, or even man. Plague bacilli have been found in the stomach of individuals of this species. The habit of depositing intestinal contents upon the skin, exhibited by the flea when sucking blood, adds to the danger of the flea as a factor in the spread of plague.

The committee transmitted the plague from rat to rat under conditions that excluded all agencies for transmission except fleas, and air. It was attempted to repeat the experiments with rats free from fleas, but it was impossible to free rats from fleas. This deficiency in the evidence was supplied by experiments in which healthy rats were killed by exposure to rat fleas from plague-stricken rats.

A very extended series of experimental epidemics among guinea-pigs showed that close contact of plague-infected animals, with healthy animals—fleas excluded—does not give rise to an epizootic among those exposed. The conditions were such as to lead to the conclusion that the excreta of infected animals are unimportant factors in spreading infection. The rate of progress of an epizootic is in direct proportion to the number of fleas present. An epizootic may start without direct contact of healthy and infected animals. Infection can occur without contact with contaminated soil.

Guinea-pigs allowed liberty in plague-infected houses became infected with a large number of rat fleas, and 29 per cent died of plague. Fleas from plague-stricken rats in infected houses were used to infect healthy animals, as also were fleas collected from infected houses by means of guinea-pigs. Animals in plague-infected houses, but protected from fleas by flea-proof screens, or by "tanglefoot," remained healthy.

Studies of the physiology of blood-sucking of the rat flea showed that it is accompanied by the injection of saliva into the wound.

Experiments showed that the virus of plague may be transmitted from rat to rat without evidence of alteration of the virulence. Inoculation upon the scarified skin was more difficult to accomplish, but passage from rat to rat by this method did not alter the virulence.

It is quite impossible to condense the results of the voluminous work of the Plague Committee into a brief abstract, without doing injustice. A bare recital of conclusions, disconnected from a description of the carefully planned experiments, gives no idea of the thorough manner with which the problem has been attacked. A perusal of the report gives a most convincing impression of the importance of rats and fleas in the dissemination of the plague.

A. R. WARD.

EMBALMING FLUID.

The State law contemplates that the State Board of Health shall *approve methods* of embalming and an embalming fluid. We have been *backward in doing* this, waiting for the National Funeral Directors' *Association to solve* the question of a satisfactory fluid. This they

have done, and in response to numerous questions of what is a satisfactory fluid, we publish the following extract from their proceedings:

Formula of embalming fluid as submitted by the fluid committee and accepted by the National Funeral Directors' Association:

Formaldehyde	11	lbs.
Glycerin	4	lbs.
Borax	2½	lbs.
Boracic Acid	1	lb.
Saltpetre	2½	lbs.
Eosin (1 % solution)	1	oz.
Water to make	10	gals.

The simplest way to compound this fluid will be:

First—To dissolve the powdered borax and boracic acid in about five gallons of water; stirring, or warming and stirring together, will hasten the solution.

Second—Add the powdered saltpetre. When completely dissolved, add the glycerin and formaldehyde and make up to 10 gallons with water.

Lastly, add the eosin or color solution. Distilled water gives the best results, although soft or rain water may be used.

That this is an ideal fluid we do not claim, but we believe we have proven beyond a doubt that it is better than the usual fluid on the market now. The day of the fluid which contains mineral poisons has passed. Because we felt that this was coming, we avoided all mineral poisons.

The formula we give below is for a fluid which, if used on a basis of four quarts for a 150-pound subject, will answer the demand for an approved *disinfectant* until a better one is found:

Formaldehyde (40%)	14%
Borax	3
Boracic Acid	1
Glycerin	5
Saltpetre	3
Solution of Eosin (1%)	5 cc.
Water, q. s.	

VITAL STATISTICS FOR SEPTEMBER.

Summary.—For September there were reported 2,043 living births; 2,292 deaths, exclusive of stillbirths; and 1,967 marriages. For an estimated State population of 2,001,193 these figures give the following annual rates: Births, 12.4; deaths, 13.9; and marriages, 12.0. The corresponding rates for August were: 12.8, 14.7, and 10.4.

Marriages were reported for the principal counties as follows: Los Angeles, 432; San Francisco, 355; Alameda, 239; Sacramento, 95; Marin, 77; Santa Clara, 76; and San Diego, 59.

Births were registered in freeholders' charter cities as follows: San Francisco, 400; Los Angeles, 356; Oakland, 127; Berkeley, 41; San Diego, 35; Pasadena, 31; Alameda, 29; Sacramento, 28; Fresno, 27; and San José, 25.

Deaths occurred as follows in the leading cities: San Francisco, 500; Los Angeles, 299; Oakland, 144; Sacramento, 57; San Diego, 43; Berkeley, 38; Alameda, San José, and Stockton, each 31; Fresno, 30; and San Bernardino, 26.

Causes of Death.—The principal causes of death in September were the same as in preceding months. Tuberculosis was the leading cause of death, with diseases of the circulatory system (heart disease, etc.) next in order. There were also considerable numbers of deaths from diseases of the digestive system, of the nervous system, and of the respiratory system, ranking in the order mentioned, as well as from various forms of violence—suicide, accidental injuries, etc.

Typhoid fever, as usual, was the most fatal epidemic disease in the month, with diphtheria and croup next in order.

STATISTICS OF MARRIAGES: 1906.

Reports to the State Bureau of Vital Statistics show that there were 21,317 marriages in California in 1906, the first calendar year covered by the present registration law, against an incomplete total of only 8,338 for the last half of 1905, when the law was being put into operation. The numbers were highest in 1906 for Los Angeles, San Francisco, and Alameda counties, being respectively 4,506, 3,539, and 3,019. Next in order were: Santa Clara, 956; Sacramento, 834; Marin, 750; San Diego, 581; Fresno, 549; Orange, 524; San Joaquin, 520; San Bernardino, 404; Sonoma, 380; Riverside, 287; Santa Cruz, 269; Humboldt, 266; and San Mateo, 252. There were also 100 or more marriages in the year in the following counties, arranged in descending order: Santa Barbara, Tulare, Contra Costa, Solano, San Luis Obispo, Mendocino, Monterey, Butte, Napa, Shasta, Kern, Ventura, Siskiyou, Kings, Yolo, Nevada, and Stanislaus. Among the remaining twenty-four counties the totals range from 89 for Tehama and 88 for Placer to 4 for Mono and 1 for Alpine.

For a State population of 1,882,846 in 1906, estimated conservatively by the Census Bureau method with slight modifications, the 21,317 marriages give an annual rate of 11.3 per 1,000 population. Of the individual counties, Marin, adjoining San Francisco, shows the highest rate, 43.4, and Orange, adjoining Los Angeles, has the next, 22.4. The marriage rates are next highest for the following counties: San Mateo, 19.0; Sacramento, 16.9; Los Angeles, 16.0; San Diego, 14.4; Santa Clara, 14.2; Riverside, 13.9; Alameda and San Joaquin, each 13.2; San Bernardino, 12.6; Fresno, 12.4; Tulare, 12.1; Santa Cruz, 11.8; Santa Barbara, 11.3; San Luis Obispo, 10.9; and Stanislaus, 10.5. In all except the last two the rates exceed or equal the State average. The marriage rates are also notably high for other counties, as follows: Butte, 9.9; Napa, 9.8; Kings, 9.6; Yuba, 9.5; Contra Costa, 9.4; Humboldt and Sonoma, each 9.1; Monterey, 8.8; San Benito, 8.6; Merced, 8.1; Mendocino, San Francisco, and Shasta, each 7.9; and Tehama and Ventura, each 7.6. On the other hand, the rate is only 2.0 for Alpine and 1.8 for Mono.

The marriage rate per 1,000 population is 7.6 for Northern California and 10.7 for Central California, or 10.1 for the fifty counties north of Tehachapi, against 15.3 for the seven counties in Southern California. In Northern as well as Central California the rate is higher for the counties on the coast than for those in the interior. The marriage rate is also higher in urban than in rural districts. Thus, the rate is 10.6 *for the metropolitan* area, comprising San Francisco and the other bay *counties (Alameda,* Contra Costa, Marin, and San Mateo), against 9.6

for the rural counties north of Tehachapi. Similarly, the marriage rate is 16.0 for Los Angeles, as compared with 14.0 for the other six counties of Southern California. The ratio of marriages to population is not only greatest in the two main urban centers of the State, but away from them is also greatest in those counties which contain important cities, such as Sacramento, San Diego, San José, Riverside, Stockton, San Bernardino, Fresno, Visalia, Santa Cruz, Santa Barbara, San Luis Obispo, and Modesto. The high marriage rates for the metropolitan centers and for counties with large cities indicate that there is a strong tendency for marriageable persons living in the country to go to the largest city accessible for the purpose of being married, even leaving the home county for one with a city in which to satisfactorily celebrate the event.

On the other hand, there is a counter movement impelling residents of a metropolitan center like San Francisco or Los Angeles to select for their place of marriage not the metropolis proper, but instead a suburban city or town. This is shown by the very great proportion of marriages to resident inhabitants for Marin and San Mateo counties in the suburbs of San Francisco and for Orange County adjoining Los Angeles. In short, country swains like to celebrate marriage in large cities, while couples belonging to a metropolis are apt to prefer the suburbs.

Of the 21,317 marriages in California in 1906, 15,790 or 74.1 per cent were first marriages for both parties, neither groom nor bride having been married before. In all of the few marriages in Alpine and Mariposa counties both parties were single. Outside these the per cent of first marriages ranges from 95.2 for Plumas, 92.3 for Inyo, and 91.7 for El Dorado to 66.3 for San Mateo, 65.3 for Orange, and 61.3 for Marin.

In 2,238 cases the marriage was the first of the groom only, and in 1,674 it was the first of the bride only. That is, there were 568 more instances where widows fascinated bachelors than where widowers won spinsters. In fact, it is a general rule that there are more marriages between single men and widowed or divorced women than between single women and widowed or divorced men. There are exceptions to the rule, and only slight exceptions at that, for only seven counties—Kings, Lake, Lassen, San Benito, Siskiyou, Sutter, and Tuolumne.

In only 1,615 instances, or 7.6 per cent of all, was the marriage the second or over of both groom and bride, each party having been married before. The per cent of marriages where both parties had prior experience is 8.8 for Southern California, 7.1 for Central California, and 6.9 for Northern California. It is 8.4 for Los Angeles and 9.6 for the other counties south of Tehachapi. The per cent is only 5.3 for San Francisco, against 8.1 for the other bay counties.

Altogether 18,028 or 84.6 per cent of the grooms were single, 1,988 or 9.3 per cent widowed, and 1,301 or 6.1 per cent divorced. Among the brides the single numbered 17,464 or 81.9 per cent, the widowed 2,174 or 10.2 per cent, and the divorced 1,679 or 7.9 per cent. The widows outnumber the widowers by 186 or 9.4 per cent, and the divorced women outnumber the divorced men by 378 or 29.1 per cent.

The per cent single, among grooms as well as brides, is considerably higher for San Francisco than for any other geographic division, though not as high as for various small counties.

The per cent widowed is much higher for both grooms and brides in Southern California than in either Northern or Central California, and is especially high for the counties south of Tehachapi other than Los Angeles. The per cents are also much higher for the bay counties adjoining San Francisco than for the metropolis itself.

Generally speaking, the per cent divorced is highest, both among grooms and brides, for the bay counties adjoining San Francisco and for the counties of Southern California other than Los Angeles. The per cent divorced among grooms is 10.3 for Marin, 9.1 for San Mateo, and 6.5 for Alameda County against only 5.2 for San Francisco. Similarly, it is 10.2 for Santa Barbara and 8.8 for Orange County, but only 6.4 for Los Angeles. Among brides, the per cent divorced is no less than 14.5 for Marin, 12.3 for San Mateo, and 7.9 for Alameda as compared with only 7.0 for San Francisco. Likewise the per cent is as great as 12.6 for Orange against 7.0 for Los Angeles County.

There is a tendency for city couples to go to the suburbs to be married, and this movement is particularly strong on the part of widowed and divorced persons, especially the latter. The shy divorcee even more than the coy maiden likes to be wed in a quiet Gretna Green.

CALIFORNIA STATE BOARD OF HEALTH.

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ARCHIBALD R. WARD, D.V.M., *Director*.....University of California, Berkeley

VITAL STATISTICS FOR OCTOBER.

Summary.—For October there were reported 2,409 living births; 2,506 deaths, exclusive of stillbirths; and 2,030 marriages. For an estimated State population of 2,001,193 these figures give the following annual rates: Births, 14.2; deaths, 14.7; and marriages, 11.9. The corresponding totals for September were 2,111, 2,272, and 1,967, while the rates were respectively 12.8, 13.8, and 12.0.

The October totals for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) and corresponding roughly to the proposed "Greater San Francisco" are as follows: Births, 1,003; deaths, 911; and marriages, 751.

Marriages were reported by counties as follows: Los Angeles, 403; San Francisco, 341; Alameda, 295; Sacramento, 98; Santa Clara, 78; Marin, 73; San Diego, 70; Orange, 59; and Fresno, 57.

Births were registered in freeholders' charter cities as follows: San Francisco, 651; Los Angeles, 360; Oakland, 142; Berkeley, 50; Sacramento, 49; San Jose, 41; Alameda, 38; Pasadena and San Diego, each 31; and Fresno, 28.

Deaths occurred as follows in the leading cities: San Francisco, 530; Los Angeles, 326; Oakland, 153; Sacramento, 53; San Diego, 50; Stockton, 49; San Jose, 36; Berkeley, 31; Pasadena, 28; and Alameda, 25.

Causes of Death.—In October there were 363 deaths, or 14.5 per cent of all, from diseases of the circulatory system (heart disease, etc.), and 352, or 14.1 per cent, from tuberculosis of the lungs and other organs. For September the proportion was slightly higher for various forms of tuberculosis than for heart disease and allied ailments. Other important causes of death each month were violence, diseases of the nervous system, of the digestive system, of the respiratory system, and cancer. The proportions for pneumonia and other diseases of the respiratory system were somewhat higher in October than in September.

Typhoid fever was the most fatal epidemic disease in the State each month, though the number and per cent of diseases from this cause was considerably less for October than for September. Diphtheria and croup, plague, and whooping-cough were next in order among epidemic diseases each month.

The following table gives, for both October and September, the number of deaths from certain principal causes as well as the proportions from each cause per 1,000 total deaths:

Cause of Death.	Deaths.		Proportion per 1,000.	
	October.	September.	October.	September.
ALL CAUSES	2,506	2,272	1,000.0	1,000.0
Typhoid fever	51	62	20.3	27.3
Malarial fever	11	7	4.4	3.1
Smallpox	1	----	0.4	----
Measles	11	2	4.4	0.9
Scarlet fever	2	3	0.8	1.3
Whooping-cough	16	10	6.4	4.4
Diphtheria and croup	38	34	15.2	15.0
Influenza	10	1	4.0	0.4
Plague	26	25	10.4	11.0
Other epidemic diseases	11	10	4.4	4.4
Tuberculosis of lungs	315	269	125.7	118.4
Tuberculosis of other organs	37	28	14.8	12.3
Cancer	124	125	49.5	55.0
Other general diseases	86	86	34.3	37.9
Meningitis	48	45	19.1	19.8
Other diseases of nervous system	205	178	81.8	78.3
Diseases of circulatory system	363	295	144.8	129.8
Pneumonia and broncho-pneumonia	160	124	63.8	54.6
Other diseases of respiratory system	66	43	26.3	18.9
Diarrhea and enteritis, under 2 years	91	116	36.3	51.1
Diarrhea and enteritis, 2 years and over	19	22	7.6	9.7
Other diseases of digestive system	140	126	55.9	55.5
Bright's disease and nephritis	143	123	57.1	54.1
Childbirth	18	22	7.2	9.7
Diseases of early infancy	82	80	32.7	35.2
Suicide	47	45	18.7	19.8
Other violence	241	237	96.2	104.3
All other causes	144	154	57.5	67.8

Geographic Divisions.—The table which follows shows the number of deaths from main classes of diseases in the several geographic divisions of the State for both October and September:

Geographic Division.	Deaths.									
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Violence	All Other Causes
OCTOBER.										
THE STATE	3,506	177	352	124	253	363	226	250	288	473
Northern California	331	32	26	5	33	44	44	31	49	67
Coast counties	145	12	18	4	19	19	17	15	16	25
Interior counties	186	20	8	1	14	25	27	16	33	42
Central California	1,478	117	190	82	138	226	135	157	171	262
San Francisco	530	58	66	37	31	76	46	59	53	104
Other bay counties	381	30	43	18	46	65	35	38	45	61
Coast counties	179	10	26	7	15	37	17	22	15	30
Interior counties	388	19	55	20	46	48	37	38	58	67
Southern California	697	28	136	37	82	93	47	62	68	144
Los Angeles	491	21	96	27	50	76	34	46	42	99
Other counties	206	7	40	10	32	17	13	16	26	45
SEPTEMBER.										
THE STATE	2,272	154	297	125	223	295	167	264	282	465
Northern California	294	19	27	9	47	30	30	27	37	68
Coast counties	139	4	8	6	32	12	15	15	17	30
Interior counties	155	15	19	3	15	18	15	12	20	38
Central California	1,339	108	159	79	118	190	86	161	171	267
San Francisco	483	49	57	34	38	69	33	59	51	93
Other bay counties	347	26	39	16	33	56	23	51	42	61
Coast counties	140	9	16	5	16	25	11	15	14	29
Interior counties	369	24	47	24	31	40	19	36	64	84
Southern California	639	27	111	37	58	75	51	76	74	130
Los Angeles	463	21	83	29	43	58	37	50	44	98
Other counties	176	6	28	8	15	17	14	26	30	32

PLAGUE.

This issue of the Bulletin is mostly given over to the plague and fleas, not that we consider there is any great danger of a serious epidemic, for we do not, but our belief is based on the fact that every one knows the existence of the disease, and the effort being made that all may know the means by which it is spread and how to avoid it.

There are a few facts which can not be too strongly impressed into the minds of all, and the first is that there is nothing in the climate of California or of any other State that will inhibit the spread of plague. Heat or cold is all the same to it; wet or dry makes no difference; it accommodates itself to the conditions. The second important fact is that it is a rat disease primarily, and that it will flourish where they are, it

once introduced. No rats, no plague. A third point is that rats live where they are invited; that is, where they are fed and given shelter. Make basements and cellars rat proof and keep all food from them and they will not stay with you. Their great source of livelihood is foraging from the garbage barrel; hence, all waste matter should be put into a closely covered tin or iron can, and all food kept out of their reach. If every one would trap and poison the rats about his own premises, plague would soon be wiped out of existence. The cases are growing constantly less, but the work of cleaning and destroying vermin goes on with increased vigor all over the State.

No cases have been reported outside the area originally infected. Up to date (November 18th), there have been 96 verified cases in San Francisco, with 60 deaths. In Alameda and Contra Costa counties there have been 8 cases and 7 deaths.

All ships and boats are being fumigated every fourteen days, and the organized work of cleaning, disinfecting, and destroying vermin has extended to surrounding counties and into practically all the cities in the State. Not only will plague be kept from spreading, but the general health of the State will be improved.

BUBONIC PLAGUE.

By Passed Assistant Surgeon Rupert Blue, United States Public Health and Marine-Hospital Service.

Plague is an epizootic disease attacking rats and other rodents and communicable to man through the agency of the flea. It may also be transmitted through the respiratory or digestive systems or through skin abrasions.

Plague occurs in three forms: the bubonic, the pneumonic, and the septicæmic. The terms *pestis major* or *pestis minor* are simply used to express the severity of the disease.

The disease is caused by a short bipolar bacillus with rounded ends. It stains well with carbol-thionin and decolorizes by Gram's method. It grows well on most media and shows typical stalactite cultures on bouillon and bizarre forms on salt agar. The bacillus is mechanically carried from the plague-sick rat by the flea, which by biting man inoculates him with the disease. All ages, all races, all classes are attacked. There are no exemptions.

In the *bubonic form* the pathological findings are those of a severe toxæmia with hæmorrhagic necrosis of the lymph glands. These are usually firmly bound down and surrounded by an area of hæmorrhagic œdema. The spleen and liver are enlarged and softened. The capsule of the spleen shows minute underlying white necrotic spots. The heart is dilated and shows muscular degeneration. All of the organs, including the skin, may show hæmorrhagic ecchymoses or petechiæ.

The pneumonic form resembles an ordinary lobular pneumonia. Only small patches of the lung may be involved. These are seen as small red areas surrounded by healthy tissue.

The findings of the septicæmic type are identical with those of any *septic infection* plus internal glandular involvement.

The attack is ushered in by chilly sensations, backache, headache, fever of moderate severity, great prostration, and swelling and tenderness of the affected lymph nodes. The right inguino-femoral glands are most often attacked; next in frequency are the axillary and cervical glands. The gland is not easily outlined and is surrounded by an œdematous area. Petechiæ may be distributed on any part of the body. The pulse is rapid and bounding, but easily compressible; becoming dicrotic, and as the disease progresses almost imperceptible. The fever shows a sharp initial rise and falls by lysis. The tongue presents a red tip and edges, with a white coating on the dorsum, turning brown as the disease progresses.

The *pneumonic type* has all the symptoms of a true pneumonia, but the physical findings are slight in proportion to the overwhelming prostration of the patient. Dullness with intervening resonance may be found. The *B. pestis* may be isolated from the sputum.

The *septicaemic type* may supervene upon a bubonic case or may be primary. It is usually rapidly fatal. The symptoms are identical with those caused by a severe streptococcus septicæmia. Blood smears from such cases show the *B. pestis.*

Plague buboes may be diagnosed from those of venereal origin by the absence of other venereal lesions and the fact that syphilitic, chancroidal, and gonorrheal buboes are sharply defined. When any doubt exists buboes should be punctured with a hypodermic syringe and the fluid withdrawn, examined microscopically, and by guinea pig inoculation. Mumps should be excluded by the age of the patient, the mildness of that disease and the reaction of sour substances. True pneumonia may be ruled out by sputum examination and the disproportion between the physical findings and the great illness of the patient. Typhoid complicated by superficial hæmorrhages may be difficult to eliminate. The Widal reaction, the tongue, the intestinal symptoms, and the step-like gradations of the temperature in enteric fever should all be taken into account. The typhoid eruption is a roseola, while that of plague is petechial.

The blood of all septicæmias should be examined in plague times for the *B. pestis.* Ambulatory bubonic cases of mild type may be overlooked. Two such cases have recently occurred in San Francisco.

It should not be forgotten that plague may supervene upon a chronic disease and cause the death of the patient. Plague is a polyform disease, and the practitioner should always have it in mind when diagnosing obscure cases. Especial care should be taken when there is a primary delirium.

The prognosis in plague is very grave, 90 per cent of Asiatics and at least 55 per cent of whites attacked die of the disease. A critical change in temperature and an early delirium are bad auguries. Uncomplicated bubonic cases are the mildest and are most apt to recover. Secondary septicæmia is a very serious complication.

The treatment of plague falls into two divisions: specific and symptomatic. For the former, Yersin's serum is best. It comes in dry form and is prepared by dissolving the contents of the tube in 10 cc. sterilized water. Five tubes should be given as a preliminary dose and repeated if necessary. The symptomatic indications are to support the heart, and apply cold packs to the buboes. Temperature may be reduced by

sponge baths. The remainder of the treatment will suggest itself to any intelligent practitioner. Buboes should not be incised unless suppuration occurs.

Persons who are about to be exposed to the disease should be immunized with Haffkine's prophylactic. This confers immunity for about six months. It should not be used on those who have already been exposed to plague, on account of the negative phase which it induces. Yersin's serum, if used for prophylaxis, should be given every ten days in doses of 10 cc.

The suppressive measures to be used against plague include the destruction of the rat and his parasites. All premises should be kept scrupulously clean and no food or garbage left about which might attract rats. The rats themselves should be trapped and poisoned. For the latter phosphorus paste, plaster of paris flour, and Danysz' rat virus of high virulence should be used. Municipalities should encourage rat eradication by offering a bounty on rats, and all rodents so secured should be examined bacteriologically, as in this way infected localities may be discovered. Houses should be freed from fleas and other suctorial insects, by taking up the carpets, beating them in the sun and washing down the floors and baseboards with bichlorid of mercury 1-500, carbolic acid 1-40, or similar antiseptics. Care should be taken to prevent the reimportation of fleas into clean houses by sand in the shoes and on the persons of householders. All dwellings and places of business should be rendered rat-proof by the concreting of all basements and the closure of all openings through which rats could find ingress or egress.

When there is a suspicion that plague may exist, all dead should be examined before burial and necropsies made in case of doubt. Plague cases should be buried in metal caskets with lime, or, what is more preferable, they should be cremated. When the body has been embalmed with formalin solution it is rendered sterile, hence these measures are unnecessary.

Persons suffering from plague should be isolated and all contacts subjected to daily examination for eight days. The house should be disinfected with sulfur 3 pounds per 1,000 cubic feet of initial air space to kill insects, the carpets removed after fumigation and well beaten, and the floors and baseboards washed down with antiseptic solutions. All sweepings from the house should be burned. Plague is a long-lived disease and may be perpetuated for years in a community in the body of the rat, the mouse or the ground squirrel—hence when plague occurs in a locality it is the patriotic duty of every citizen to lend his hearty coöperation in exterminating all rodents and assisting the public health officers by every means at his command.

PRELIMINARY NOTE ON THE STUDY OF RAT FLEAS IN RELATION TO BUBONIC PLAGUE.

By M. B. MITZMAIN, of the University of California.

Approximately eight hundred rats have been collected and examined, from ships in the harbor, stables along the water front, and from districts in San Francisco, Oakland, and Point Richmond where plague had been reported by the local Health Boards.

Of the fleas studied thus far the following species have been determined:

Ceratophyllus fasciatus (Bosc.), 63 specimens (32 females, 31 males).
Ctenopsylla musculi (Duges), Baker, 17 specimens (8 females, 9 males).
Pulex pallidus (Tsch), 14 specimens (10 females, 4 males).
Ctenocephalous canis (Curtis), Baker, 17 specimens (12 females, 5 males).
Pulex irritans (Linn.), 4 specimens (2 females, 2 males).

C. fasciatus appears to be the predominant rat flea. It is found on the brown rat of the Bay regions in the more populated centers and in the Berkeley hills. *C. fasciatus* was found to be the only species on seven plague rats taken from San Francisco. At Point Richmond, from a warehouse, which was a probable source of a case of human plague, nineteen rat fleas were collected, and all proved to be of the common species.

C. musculi was collected from both brown and black rats. From ships in the harbor three of this species were collected from three black rats, and eight from four brown rats. In a stable on the water front, six fleas of this species were taken from three brown rats. *C. musculi* appears to be the predominant ship rat flea. It is reported from Mexico originally bearing the name *C. Mexicanus* (Baker).

P. pallidus, a species very closely allied to the human flea (*P. irritans*), was identified on brown and black rats from ships and on land. Ten came from black rats on shipboard and three were taken from brown house rats.

The specimens of *C. canis* were obtained from land rodents of the brown variety. We can feel reasonably sure these originated from land hosts which hunted the wily rodents.

The *P. irritans,* the least numerous of all fleas found on the rats, were collected in a grain warehouse and stable a few blocks from the harbor.

Doubtless the reason that so few specimens were collected from nearly five hundred rats on shipboard is due to the method of fumigation. The SO_2 gas causes the rodents to become bewildered, scampering about the ship. The fleas, when surrounded by the poisonous fumes, leave the rats, endeavoring to escape. No doubt all the fleas are killed in the fumigation when properly administered. After the sulfuring I have not succeeded in finding live fleas in the holds, or in the rat nests where ordinarily they are quartered.

It is certainly significant to note that the species collected from ship rats can be duplicated within two blocks from the water front. I found three distinct fleas on a rat in a harbor stable. Two of these were identified with those collected from ship rats which came from Oriental ports. Oriental species do not appear among specimens collected a half mile away from the water front.

Mr. Carl Baker, of the Smithsonian Institute, asserts that the rat fleas of the Orient are more closely related to the human flea than are those of the United States. This claim can not be maintained after the study of the rat fauna of the Pacific sea port. The rat flea, *P. pallidus,* is closely identified to *P. irritans,* the human flea. With Baker's descriptions the two can not be distinguished without difficulty. The species of fleas found in India and the Orient can be collected from rats in California.

It is no doubt true that where plague is present there exists an abnormal supply of rat fleas. Dr. Wherry, of the San Francisco Board of Health, collected one hundred and eighty fleas from two rats sent in from the Latin quarter. On four rats taken from Meiggs wharf, San Francisco, there were counted approximately two hundred and forty fleas. Three of these rats were autopsied, and one was found to have a pronounced case of plague, verified clinically and bacteriologically. In the normal conditions, and in districts removed from plague, the rats harbor an average of three to four fleas.

The claim that live fleas invariably leave the cadaver of a rat is a fallacy. I have found fifteen live fleas on the dead bodies of forty rats. These had been cold for thirty-six hours, showing signs and odors of decomposition. Dr. Hobdy, Chief Quarantine Officer of the U. S. P. H. and M. H. S., located a number of dead rats in a stable near the harbor. Four of these were examined by him and showed about sixty live fleas in the cervical region of each. These rats had been dead for forty-eight hours. At the City Board of Health and the district substations, live fleas have been taken from numerous rats which had been dead for periods ranging from eighteen to sixty hours.

The importance of the house fly in the dissemination of the plague should not be overlooked. The writer is making a study of the flies found on cadavers of plague-infected rats. We may feel reasonably sure that the house fly deserves serious consideration in this connection.

The writer intends, also, to make a detailed study of the life history of the rat flea.

We shall be pleased to identify insects found on the rats in California.

Professor A. R. Ward, Director of the State Hygienic Laboratory, directed the writer's attention to the entomological importance of the plague question in San Francisco. With his material aid this study was pursued since October. I am under serious obligation to Dr. Hobdy, Chief of the San Francisco Quarantine Station, and his assistants for their courtesy and timely aid. Professors Woodworth and Quayle, of the University Entomological Department, have directed me in the verification of the species of fleas thus far obtained.

* * * * *

The great danger of spreading tuberculosis comes from the carelessness and ignorance of patients, and this danger is the greatest when they live in unsanitary and unhygienic surroundings, especially where the sunlight does not enter and where ventilation is impossible. Scientific experiments show that the direct rays of the sun will kill the bacilli in from a few minutes to a few hours. In dark, illy ventilated apartments, however, the bacilli will live for months. It is wonderful to contemplate that while a tuberculous patient will cast off several millions of bacilli a day, and while the disease usually lasts months, and often years, on an average each case does not infect quite one new one. This fact should certainly be enough to quiet the fears of those who seem to be panic-stricken, thinking this disease so highly infectious.

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CALIFORNIA STATE BOARD OF HEALTH.

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NOTICES TO REGISTRARS.

New Numbers for Certificates.—As some Local Registrars overlooked the matter a year ago, the attention of all is again drawn to the fact that the registration law expressly provides that birth, marriage, and death certificates must all be numbered "in consecutive order, beginning with number one * * * in each calendar year." Local Registrars' fee accounts can not be approved promptly unless all certificates are correctly numbered as the law requires.

Complete Reports Each Month.—Local Registrars are also reminded that it is the clear intent of the law that the original certificates forwarded to the State Bureau of Vital Statistics early each month should be an approximately complete report of all births, marriages, and deaths, especially the latter, in the several registration districts in the preceding month. Inaccuracies are introduced into the statistics when a Local Registrar's report for a certain month includes scattering certificates which belong with the returns for an earlier month or months. Though Recorders with Subregistrars scattered over counties of extensive area or of a mountainous nature may be excused for not forwarding early each month certificates for all deaths in the district in the preceding month,

yet the aim of every Local Registrar should be to forward as promptly as possible reports that are practically complete, month by month.

VITAL STATISTICS FOR DECEMBER.

Births.—The births for December, so far as reported to the State Bureau of Vital Statistics, number 2,310, as compared with 1,975 living births reported for November. For an estimated State population of 2,001,193, the December total represents an annual birth-rate of 13.8, against 12.0 for the preceding month.

Births for December were registered in freeholders' charter cities as follows: San Francisco, 449; Los Angeles, 367; Oakland, 166: Sacramento, 54; Berkeley, 45; Fresno, 40; Alameda and Pasadena, each 36; San Diego, 32, and San José, 26.

Marriages.—The marriages reported for December number 2,174, against 1,843 for November, the annual rate for the final month of the year being 12.8, as compared with 11.2 for the month before.

Marriages for December were reported by counties as follows: Los Angeles, 417; San Francisco, 321; Alameda, 266; Santa Clara, 101: Sacramento, 90; Marin, 80; Fresno, 75; San Diego, 58; San Joaquin, 57; and Orange, 55.

Deaths.—In closing up their work for 1907, many Local Registrars included in their December returns death certificates which belong with reports for earlier months. Consequently, the total of 3,484 deaths reported for December includes from 900 to 1,000 deaths which occurred in November and before. For this reason no death-rate has been calculated for December in contrast with November.

The present death-rate in the State, however, can be given on the basis of returns for the whole year 1907. Returns so far received make a provisional total of 30,890 deaths, exclusive of stillbirths, for California in 1907 and for an estimated State population of 2,001,193 this total gives an annual death-rate of 15.4.

Deaths for December were reported as follows for the leading cities: San Francisco, 637; Los Angeles, 399; Oakland, 145; Sacramento, 98; San Diego, 69; Stockton, 42; San José, 40; Fresno, 39: Berkeley, 38; Pasadena, 35; Alameda, 28; Riverside, 27: and San Bernardino, 26.

Causes of Death.—The tabulation of deaths reported for December, including belated returns for previous months which, however, do not appreciably affect the relative proportions by diseases, shows that tuberculosis was the leading cause of death in the month, with diseases of the respiratory system and of the circulatory system next in order. There were also considerable numbers of deaths from diseases of the nervous system, from violence, and from diseases of the digestive system.

The leading epidemic diseases in the month were typhoid fever, diphtheria and croup, influenza, and scarlet fever.

The following table gives the number of deaths from certain principal causes reported for December, as well as the proportions from each cause per 1,000 total deaths for both December and November.

Cause of Death.	Deaths: December.	Proportion per 1,000.	
		December.	November.
ALL CAUSES	3,484	1,000.0	1,000.0
Typhoid fever	80	23.0	24.8
Malarial fever	6	1.7	2.0
Smallpox	1	0.3	0.4
Measles	6	1.7	3.5
Scarlet fever	12	3.4	1.2
Whooping-cough	6	1.7	2.8
Diphtheria and croup	50	14.4	19.3
Influenza	18	5.2	3.5
Plague	9	2.6	5.9
Other epidemic diseases	13	3.7	5.1
Tuberculosis of lungs	452	129.7	128.1
Tuberculosis of other organs	61	17.5	17.7
Cancer	186	53.4	53.8
Other general diseases	142	40.8	37.3
Meningitis	56	16.1	18.5
Other diseases of nervous system	268	76.9	75.0
Diseases of circulatory system	483	138.6	156.8
Pneumonia and broncho-pneumonia	375	107.6	66.0
Other diseases of respiratory system	115	33.0	27.1
Diarrhea and enteritis, under 2 years	91	26.1	40.1
Diarrhea and enteritis, 2 years and over	35	10.1	11.0
Other diseases of digestive system	178	51.1	48.7
Bright's disease and nephritis	176	50.5	53.8
Childbirth	23	6.6	9.0
Diseases of early infancy	83	23.8	31.4
Suicide	56	16.1	16.9
Other violence	252	72.3	82.1
All other causes	251	72.1	58.2

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases reported for December for the several geographic divisions of the State, including the metropolitan area, or "Greater San Francisco," in contrast with the rural counties north of Tehachapi:

Geographic Division.	Deaths: December.									
	All Causes.	Epidemic Diseases.	Tuberculosis (All Forms).	Cancer.	Diseases of Nervous System.	Diseases of Circulatory System.	Diseases of Respiratory System.	Diseases of Digestive System.	Violence.	All Other Causes.
THE STATE	3,484	201	513	186	324	483	490	304	308	675
Northern California	555	36	59	24	60	77	107	37	48	107
Coast counties	208	8	28	9	31	36	30	16	12	38
Interior counties	347	28	31	15	29	41	77	21	36	69
Central California	1,981	118	270	114	172	289	278	166	176	398
San Francisco	637	38	80	44	42	104	83	60	67	119
Other bay counties	408	26	55	23	34	61	48	33	54	74
Coast counties	251	7	30	11	29	50	31	21	20	52
Interior counties	685	47	105	36	67	74	116	52	35	153
Southern California	948	47	184	48	92	117	105	101	84	170
Los Angeles	648	32	125	34	68	81	73	68	54	113
Other counties	300	15	59	14	24	36	32	33	30	57
Northern and Central California	2,536	154	329	138	232	366	385	203	224	505
Metropolitan area	1,045	64	135	67	76	165	131	93	121	193
Rural counties	1,491	90	194	71	156	201	254	110	103	312

ANNOUNCEMENT.

This month's issue of the Bulletin is devoted largely to the Pure Food and Drugs laws, which went into effect on January 1st. The laws and the regulations for their enforcement are printed in full, and will be sent upon application to any person interested.

The Laboratory has been established in the State Laboratory at Berkeley, and Prof. M. E. Jaffa, a food expert of wide reputation, made Director, with able assistants in both food and drug analyses. The work has already begun, and it is the aim of the State Board of Health to get from the law the utmost good for the people.

The prosecution of offenders is placed upon the District Attorneys of the various counties, and upon their activity will depend much of the success in furnishing the people pure food and drugs. The Laboratory will furnish the evidence of adulteration and deception, if it exists, but the courts must try the cases.

The Sheriffs of the counties are agents of the Board to collect samples, and any one believing he is being served with adulterated food or drugs can make a verified complaint to his Sheriff and it is the latter's duty to collect samples according to the legal requirements and forward to the State Laboratory for examination. Each Sheriff will be furnished with proper blanks and seals, and if he is fairly active there is little use of any one having adulterated food or drugs. Special agents will also be employed, but all the State can not possibly be gone over at once, and we shall depend somewhat upon local interest in the matter to furnish us information. It will be useless for an individual to collect samples with the expectation of having an offending seller prosecuted. The samples must be collected by agents of the Department in order to get legal process, and it will only be useless work, where work is already crowding, to send samples that are not thus collected.

An impression has gone out that the State Board of Health are not going to strictly enforce the Pure Food law, and a resolution which the Board never even considered has been published. The State Board of Health has no power to set aside any of the provisions of the law and no desire to do so, and will use their utmost endeavor to bring to punishment all willful offenders against the law.

We recognize the possibility of a person being an innocent offender, and our strongest endeavors will be made against the willful one, and to instruct those who wish to do right.

PLAGUE.

As far as human cases are concerned, plague is apparently at an end in California, but one case having appeared since the last issue of the Bulletin. Among the rats, however, the conditions are very different, and more plague rats are caught now than three months ago. This condition of affairs is easily accounted for by the rats being driven by the wet weather into closer quarters and associations and that they feed more upon their own dead. The fleas, being far less active in wet weather, do not carry the disease from the rat to the human. *This cessation of cases must not give too much confidence that the trouble is wiped out.* Indeed, it is not dead, but only sleepeth,

and the warm spring days which liven up both rats and fleas will bring us more cases of human plague, unless before that time the rat population be greatly diminished by death from the disease and poison spread for them.

No relaxation of effort should be allowed in any community. This is the best time to exterminate them and until that is done we are not safe. It is useless to say we can't do it, for we can; but to do it requires the united effort of State, county, city, town and individual, and especially the latter. The State should make its wharfs and water front rat proof, the counties, cities and towns should, where in control of water front and warehouses, do the same, and pass and enforce stringent laws against the existence of rats, or their means of livelihood on private property. The individual, for whose good it is all done, should feel his responsibility and see that his premises are clean, and that no rats or mice are allowed to exist. The safety and comfort of being in clean surroundings will more than pay the very slight expense required.

All swill must be kept in close-covered metallic cans, and rubbish not allowed to exist. The feeding yard of chickens is also a feeding yard for rats. This should be stopped, and can easily be done by surrounding it from two feet below the surface to four above with a close meshed wire netting, and for better protection a horizontal board along the top of the fence. This will pay in saving what the rats destroy. It is only necessary to build this fence around the feeding ground. Only by a strict enforcement of such efforts can we expect to keep free from this loathsome disease.

MEETING OF THE STATE BOARD OF HEALTH.

The State Board of Health held its regular meeting January 4th, 1908. The Pure Food and Drugs laws, which had just gone into effect, consumed considerable time, and the result of their labors in adopting regulations will be found in this issue.

The plague situation was thoroughly gone over and discussed, and the result of the deliberations took form in the following series of resolutions, which were unanimously adopted:

Resolved, That this Board pledges its influence and authority to their utmost limits, even to the quarantine of negligent or refractory cities, towns or districts, in the enforcement of aggressive measures for the prevention and eradication of the plague.

Resolved, That the Secretary be and hereby is instructed to call a special meeting of this Board forthwith on the neglect or refusal to take efficient measures for the prevention and eradication of plague, on the part of any city, town or county threatened therewith.

Resolved, That the Secretary be instructed to investigate forthwith the feasibility and advisability of creating a wide rodent-free zone from Suisun Bay or Carquinez straits back of Berkeley, Oakland and Alameda to San Francisco bay, and closing down from this zone on the foci in these cities.

Resolved, That this Board recommends—1. That ordinances be passed by the various cities and towns on the Coast and on the navigable waters of this State (*a*) requiring property owners, under severe penalty, to free their premises from rats and other plague-carrying rodents and from conditions which permit or promote their propagation; (*b*) to remove the conditions favorable to the propagation of flies, fleas, mosquitoes and other insects that may directly or indirectly disseminate plague; (*c*) prohibiting, under severe penalties, the discharge of cargo or any part thereof from rat-infested ships, except after disinfestation and certification in writing by the proper authorities; (*d*) prohibiting the approach of such ships sufficiently near to wharves and landings to permit the escape of rats to such wharves and landings; (*e*) quarantining rat-infested warehouses, groceries, both wholesale and retail, and other business houses dealing in foods or food supplies; (*f*) requiring

property owners to rat-proof their premises within a reasonable and specified time, beginning at the water front and extending backward; (*g*) providing for effective rat proofing of landings, docks, pier-houses and sewers; (*h*) requiring monthly examination by experts of rats caught in such cities, towns or districts; (*i*) requiring official inspection and certification before interment of the dead; (*j*) requiring dealers in foods and food supplies to protect such foods and supplies from rats, mice, flies and other insects and vermin and all other sources of plague contamination; (*k*) requiring hotels, lodging houses, boarding houses, restaurants, saloons, theaters and all other places of business, pleasure, resort, assembly or public use of any kind whatever to be kept absolutely free from domiciliary rodents under penalty of a severe fine and closure until thorough disinfection has been done and attested by an authorized officer of the Board of Health; (*l*) require all chicken yards within municipalities or thickly settled communities to be made rat-proof; (*m*) require all garbage and swill to be placed by the householder in closely covered metallic cans.

SPITTING ON CARS.

It is a satisfaction to see that the Oakland Traction Company, and the San Francisco, Oakland and San José Railway Company have placed in all their cars a neatly framed notice to their patrons politely requesting them not to spit in or on the cars, as it is illegal and spreads disease. This was done at the request of the State Board of Health, a request that was recently made to all transportation lines in the State, but which has not been universally complied with. This law is a salutary one and should be enforced as a protection to those who ride. It is generally the diseased person who spits most in public, and while this is only one way by which disease is spread, it is a prolific one. Besides, it is filthy and disgusting, and no one with proper consideration for the feelings of a fellow-passenger will be guilty of the act.

PURE FOOD AND DRUG LAWS OF THE STATE OF CALIFORNIA.

CHAPTER 181.

An act for preventing the manufacture, sale or transportation of adulterated, mislabeled or misbranded foods and liquors and regulating the traffic therein, providing penalties, establishing a state laboratory for foods, liquors and drugs and making an appropriation therefor.

[Approved March 11, 1907.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The manufacture, production, preparation, compounding, packing, selling, offering for sale or keeping for sale within the State of California, or the introduction into this state from any other state, territory, or the District of Columbia, or from any foreign country, of any article of food or liquor which is adulterated, mislabeled or misbranded within the meaning of this act is hereby prohibited. Any person, firm, company or corporation who shall import or receive from any other state or territory or the District of Columbia or from any foreign country, or who having so received shall deliver for pay or otherwise, or offer to deliver to any other person, any article of food or liquor adulterated, mislabeled or misbranded within the meaning of this act, or any person who shall manufacture or produce, prepare or compound, or pack or sell, or offer for sale, or keep for sale, in the State of California any such adulterated, mislabeled or misbranded food, or liquor shall be guilty of a misdemeanor; *provided* that no article of food shall be deemed adulterated, mislabeled or misbranded within the provisions of this act, when prepared for export beyond the jurisdiction of the United States and prepared or packed according to specifications or directions of the foreign purchaser, when no substance is used in the preparation or packing thereof in conflict with the laws of the foreign country to which said article is intended to be shipped; but if such

foods shall be in fact sold, or kept or offered for sale for domestic uses and consumption, then this proviso shall not exempt said article from the operation of any provisions of this act.

SEC. 2. The term "food" as used in this act shall include all articles used for food, drink, liquor, confectionery or condiment by man or other animals, whether simple, mixed, or compound.

SEC. 3. The standard of purity of food and liquor shall be that proclaimed by the Secretary of the United States Department of Agriculture.

SEC. 4. Food shall be deemed adulterated within the meaning of this act, in any of the following cases:

First. If any substance has been mixed or packed, or mixed and packed with the food so as to reduce or lower or injuriously affect its quality, purity, strength, or food value.

Second. If any substance has been substituted wholly or in part for the article of food.

Third. If any essential or any valuable constituent or ingredient of the article of food has been wholly or in part abstracted.

Fourth. If it be mixed, colored, powdered, coated or stained in any manner whereby damage or inferiority is concealed.

Fifth. If it contain any added poisonous or other added deleterious ingredient.

Sixth. If it consists in whole or in part of a filthy, decomposed or putrid animal or vegetable substance, or any portion of an animal or vegetable unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter; *provided* that an article of liquor shall not be deemed adulterated, mislabeled or misbranded if it be blended or mixed with like substances so as not to injuriously reduce or injuriously lower or injuriously affect its quality, purity or strength.

Seventh. In the case of confectionery: If it contain terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt, or spirituous liquor or compound or narcotic drug.

SEC. 5. That the term "misbranded" as used herein shall apply to all articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement, design or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any food product which is falsely branded as to the county, city and county, city, town, state, territory, District of Columbia or foreign country in which it is manufactured, or produced.

SEC. 6. Food and liquor shall be deemed mislabeled or misbranded within the meaning of this act in any of the following cases:

First. If it be an imitation of or offered for sale under the distinctive name of another article of food.

Second. If it be labeled or branded or colored so as to deceive or mislead, or tend to deceive or mislead the purchaser, or if it be falsely labeled in any respect, or if it purport to be a foreign product tend to mislead the purchaser, or purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package.

Third. If in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package.

Fourth. If the package containing it or its label shall bear any statement, design or device regarding the ingredients or the substance contained therein, which statement, design, or device shall be false or misleading in any particular.

Fifth. When any package bears the name of the manufacturers, jobbers or sellers, or the grade or class of the product, it must bear the name of the real manufacturers, jobbers or sellers and the true grade or class of the product, the same to be expressed in clear and distinct English words in legible type, *provided*, that an article of food shall not be deemed misbranded, if it be a well-known food product of a nature, quality and appearance, and so exposed to public inspection as not to deceive or mislead nor tend to deceive or mislead a purchaser, and not misbranded and not of the character included within the definitions 1 to 4 of this section.

SEC. 7. The term "package" as used in this act shall be construed to include any phial, bottle, jar, demijohn, carton, bag, case, can, box or barrel or any receptacle, vessel or container of whatsoever material or nature which may be used by a manufacturer, producer, jobber, packer or dealer, for inclosing any article of food.

SEC. 8. The possession of any adulterated, mislabeled or misbranded article of food or liquor by any manufacturer, producer, jobber, packer, or dealer in food, or broker, commission merchant, agent, employé or servant of any such manufacturer, producer, jobber, packer, or dealer, shall be prima facie evidence of the violation of this act.

SEC. 9. For the purposes of this act there is hereby established a state laboratory for the analysis and examination of food and drugs, which shall be under the supervision of the state board of health, which laboratory shall be located at such place as the state board of health may select.

The state board of health shall appoint a director of said laboratory, and an assistant to such director, both of whom

shall be skilled pharmaceutical chemists and analysts of foods and drugs. Said director shall perform all duties required by this act and which shall be required by the state board of health. The assistant shall be under the supervision of the director, and shall perform all duties required of him by the director and by the state board of health.

The director shall receive an annual salary of three thousand dollars, and the assistant shall receive an annual salary of fifteen hundred dollars. All such salaries shall be paid in the same manner and at the same time as the salaries of state officers.

The state board of health, out of the appropriation hereinafter provided, and out of the funds derived from the operation of this act, may employ and fix the compensation of other and additional clerical and professional assistants.

SEC. 10. The state board of health or its secretary, shall cause to be made by the said director of the state laboratory, examinations and analyses of food and liquor on sale in California, suspected of being adulterated, mislabeled or misbranded at such times and places and to such extent as said board or its secretary may determine, and may appoint such agent or agents, as it may deem necessary, and the sheriffs of the respective counties of the state are hereby appointed and constituted agents for the enforcement of this act and any agent or sheriff shall have free access, at all reasonable hours, for the purpose of examining any place where it is suspected that any article of adulterated, mislabeled or misbranded foods exist, and such agent or sheriff upon tendering the market price of said articles, if a sale be refused, may take, from any person, firm or corporation samples of any articles suspected of being adulterated, mislabeled or misbranded, and shall deliver or forward such samples to the said director of the state laboratory for examination and analysis.

SEC. 11. It shall be the duty of the state board of health whenever it has satisfactory evidence of the violation of any of the provisions of this act respecting the adulteration or misbranding of foods to report such facts to the district attorney of the county where the law is violated, after the hearing provided in section sixteen of this act.

SEC. 12. It shall be a misdemeanor for any person to refuse to sell to any sheriff or other agent of the state board of health, any sample of food or liquor upon tender of the market price therefor, or to conceal any such food from such officer, or to withhold from him information where such food is kept or stored. Any such person so refusing to sell, or concealing such food, or withholding such information from said officer shall, upon conviction, be punished as provided in section nineteen of the Penal Code of the State of California.

SEC. 13. Whenever said director shall find from his examination and analysis that adulterated, mislabeled or misbranded food has been on sale in this state, he shall forthwith report to the secretary of the state board of health.

SEC. 14. Every certificate signed by the said director of the state laboratory shall be prima facie evidence of the facts therein stated.

SEC. 15. The said director of the state laboratory shall make an annual report to the state board of health, on or before August first of each year, upon adulterated or misbranded foods and liquors, in which report shall be included the list of cases examined by him in which adulterants were found, and the list of articles found, mislabeled or misbranded, and the names of the manufacturers, producers, jobbers and sellers. Said report, or any part thereof, may, in the discretion of the state board of health, be included in the report which the state board of health is already authorized by law to make to the governor. The state board of health may, in its discretion publish any part of said report in any issue of its monthly bulletin.

SEC. 16. When an examination or analysis of the director of the state laboratory shows that any of the provisions of this act have been violated, notice of that fact together with a copy of the certificate of the findings, shall be furnished to the party or parties from whom the sample was obtained or who executed the guaranty as provided in this act, and a date shall be fixed by the secretary of the state board of health at which said party or parties may be heard before the state board of health or before any two members thereof and the secretary. The hearing shall be held in the city of Sacramento, and at least fifteen days' notice thereof shall be first served upon the party complained of. These hearings shall be private and confined to questions of fact. Parties interested therein may appear in person or by attorney and may propound interrogatories and submit oral or written evidence to show any fault or error in the findings made by the director of the state laboratory. If the examination or analysis be found correct, or if the party or parties fail to appear at such hearing after notice duly served as provided herein, the secretary of the state board of health shall forthwith transmit a certificate of the facts so found to the district attorney of the county in which said adulterated, mislabeled or misbranded food was found. No publication as in this act provided shall be made until after said hearing is concluded.

SEC. 17. It is hereby made the duty of the sheriff of any county of this state, on presentation to him of a verified complaint of the violation of any provisions of this act, at once to obtain by purchase a sample of the adulterated, mislabeled or

misbranded food complained of, and divide said article into three parts, and each part shall be sealed by the sheriff with a seal provided for that purpose. If the package be less than four pounds or in volume less than two quarts, three packages of approximately the same size shall be purchased and the marks and tags upon each package noted as above. One sample shall be delivered to the party from whom procured, or to the party guaranteeing such merchandise, one sample shall be sent to the director of the state laboratory and the third sample shall be sent to and held under seal by the state board of health.

SEC. 18. For his services hereunder the said sheriff shall be allowed the same fees for travel allowed by law to sheriffs on service of criminal process, together with such compensation as by the board of supervisors of his county may be deemed reasonable, and all amounts expended by him in procuring and transmitting the said samples, which fees and amount expended shall be audited and allowed by the said supervisors and paid by his said county as other bills of said sheriff.

SEC. 19. It shall be the duty of the district attorney of each county to prosecute all violations of the provisions of this act occurring within his county.

SEC. 20. Any person, firm, company or corporation violating any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars, nor more than five hundred dollars, or shall be imprisoned in the county jail for a term not exceeding six months, or by both such fine and imprisonment. Food found to be adulterated, mislabeled or misbranded within the meaning of this act, may, by order of any court or judge, be seized and destroyed.

SEC. 21. One half of all fines collected by any court or judge, for the violations of the provisions of this act shall be paid to the state treasurer and the state treasurer shall deposit such money to the credit of the fund for the maintenance of the state laboratory, to be drawn against by warrants of the state controller upon claims which shall be approved by the state board of health and by the state board of examiners.

SEC. 22. No dealer shall be prosecuted under the provisions of this act, when he can establish a guaranty signed by the wholesaler, jobber, manufacturer or other party residing in the United States from whom he purchased such article to the effect, that the same is not adulterated, mislabeled or misbranded within the meaning of this act, designating it. Said guaranty to afford protection, must contain the name and address of the party or parties making the sales of such article to said dealer, and an itemized statement showing the articles purchased; or a general guaranty may be filed with the Secretary of the

United States Department of Agriculture by the manufacturer, wholesaler, jobber or other party in the United States and be given a serial number, which number shall appear on each and every package of goods sold under such guaranty with the words "Guaranteed under the food and drugs act June 30, 1906." In case the wholesaler, jobber, manufacturer or other party making such guaranty to said dealer resides without this state, and it appears from the certificate of the director of the state laboratory that such article or articles were adulterated, mislabeled or misbranded, within the meaning of this act, or the National Pure Food Act, approved June 30th, 1906, the district attorney must forthwith notify the attorney-general of the United States of such violation.

SEC. 23. The sum of twenty thousand dollars ($20,000.00) is hereby appropriated out of any money in the state treasury not otherwise appropriated for the purchase of equipment, apparatus, chemicals and supplies of said laboratory and of the office expenses, in connection with the same and for the compensation of additional assistants and other necessary help. The state controller is hereby authorized to draw his warrants for the sums herein appropriated in favor of the secretary of the state board of health and the state treasurer is hereby directed to pay the same.

SEC. 24. No article of food as herein defined shall be manufactured or produced in violation of this act from and after the first day of July, nineteen hundred and seven.

SEC. 25. All acts and parts of acts in conflict or inconsistent with this act are hereby repealed.

SEC. 26. This act shall be in force and effect from and after the first day of January, nineteen hundred and eight.

CHAPTER 186.

An act for the prevention of the manufacture, sale or transportation of adulterated, mislabeled or misbranded drugs, regulating the traffic in drugs and providing penalties for violation thereof.

[Approved March 11, 1907.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The manufacture, production, preparation, compounding, packing, selling, offering for sale or keeping for sale within the State of California, or the introduction into this

state from any other state, territory, or the District of Columbia, or from any foreign country, of any drug which is adulterated, mislabeled or misbranded within the meaning of this act is hereby prohibited. Any person, firm, company, or corporation who shall import or receive from any other state or territory or the District of Columbia or from any foreign country, or who having so received shall deliver for pay or otherwise, or offer to deliver to any other person, any drug adulterated, mislabeled or misbranded within the meaning of this act, or any person who shall manufacture or produce, prepare or compound, or pack or sell, or offer for sale, or keep for sale, in the State of California, any such adulterated, mislabeled, or misbranded drug, shall be guilty of a misdemeanor; *provided,* that no article shall be deemed misbranded, mislabeled or adulterated within the provisions of this act when intended for export to any foreign country and prepared or packed according to the specifications or directions of the foreign purchaser when no substance is used in the preparation or packing thereof in conflict with the laws of the foreign country to which said article is intended to be shipped, but if said article shall be in fact sold or offered for sale for domestic use or consumption, then this proviso shall not exempt said article from the operation of any of the other provisions of this act.

SEC. 2. That the term "drug" as used in this act, shall include all medicines and preparations recognized in the United States Pharmacopœia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation, or prevention of disease of either man or other animals.

SEC. 3. The standard of purity of drugs shall be the United States Pharmacopœia and National Formulary, and the regulations and definitions adopted for the enforcement of the food and drugs act of June 30, 1906, shall be adopted by the state board of health for the enforcement of this act.

SEC. 4. Drugs shall be deemed adulterated within the meaning of this act in any of the following cases:

First. If, when a drug is sold under or by a name recognized in the United States Pharmacopœia or National Formulary, it differs from the standard of strength, quality or purity, as determined by the test laid down in the United States Pharmacopœia or National Formulary official at the time of investigation; *provided,* that no drug defined in the United States Pharmacopœia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality, or purity be plainly stated upon the package thereof although the standard may differ from that deter-

mined by the test laid down in the United States Pharmacopœia or National Formulary.

Second. If the strength or purity fall below the professed standard or quality under which it is sold.

SEC. 5. That the term "misbranded" as used herein shall apply to all drugs, the package or label of which shall bear any statement, design, or device, regarding such article or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any drug which is falsely branded or labeled as to the county, city and county, city, town, state, territory, District of Columbia or foreign country in which it is manufactured or produced.

SEC. 6. Drugs shall be deemed mislabeled or misbranded under the meaning of this act in either of the following cases:

First. If it be an imitation of or offered for sale under the name of another article.

Second. If the contents of the package as originally put up shall have been removed, in whole or in part, and other contents shall have been placed in such package, or if the package as offered for sale at retail or wholesale, fail to bear a statement on the label of the per cent of volume of alcohol, or the quantity of any morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, acetanilide, or any derivative or preparation of any such substances contained therein, except when prescribed by a licensed physician, licensed dentist, or licensed veterinary surgeon.

SEC. 7. The term "package" as used in this act shall be construed to include any phial, bottle, jar, demijohn, carton, bag, case, can, box or barrel or any receptacle, vessel or container of whatsoever material or nature which may be used by a manufacturer, producer, jobber, packer or dealer, for inclosing any drug.

SEC. 8. The sale or offering for sale of any adulterated, mislabeled or misbranded drug by any manufacturer, producer, jobber, packer or dealer in drugs, or broker, commission merchant, agent, employé or servant of any such manufacturer, producer, jobber, packer or dealer, shall be prima facie evidence of the violation of this act.

SEC. 9. Whenever required by the state board of health or its secretary, examinations and analyses of drugs on sale in California suspected of being adulterated, mislabeled or misbranded shall be made by the director of the state laboratory for the examination and analysis of foods and drugs. Said state board of health or the secretary may appoint such agent or agents as it may deem necessary for the enforcement of this act, and the sheriffs of the respective counties of the state are

hereby appointed and constituted such agents. Any agent or sheriff shall have the right to purchase at the place of business of any manufacturer or dealer, any drug suspected of being adulterated, mislabeled or misbranded within the meaning of this act, tendering the market price of said articles, if a sale be refused, he may take from any person, firm or corporation samples of any articles suspected of being adulterated, mislabeled and misbranded, and shall deliver or forward such samples to the said director of the state laboratory for examination and analysis.

SEC. 10. It shall be the duty of the state board of health whenever it has satisfactory evidence of the violation of any of the provisions of this act respecting the adulteration, mislabeling or misbranding of drugs, to report such facts to the district attorney of the county where the law is violated.

SEC. 11. It shall be a misdemeanor for any person to refuse to sell to any sheriff or other agent of the state board of health, any sample of drug upon tender of the market price therefor, or to conceal any such drug from such officer, or to withhold from him information where such drug is kept or stored. Any such person so refusing to sell, or concealing such drug, or withholding such information from said officer, shall upon conviction, be punished as provided in section nineteen of the Penal Code of the State of California.

SEC. 12. Whenever said director shall find from his examination and analysis that adulterated, mislabeled or misbranded drugs have been on sale in this state, he shall forthwith report to the secretary of the state board of health, and shall promptly transmit a certificate of the facts so found to the district attorney of the county in which said adulterated, mislabeled or misbranded drug was found.

SEC. 13. Every certificate signed by the said director of the state laboratory shall be prima facie evidence of the facts therein stated.

SEC. 14. The said director of the state laboratory shall make an annual report to the state board of health, on or before August first of each year, upon adulterated, mislabeled or misbranded drugs, in which report shall be included the list of cases examined by him in which adulterants were found, and the list of articles found mislabeled or misbranded, and the names of the manufacturers, producers, jobbers and sellers. Said report, or any part thereof, may, in the discretion of the state board of health, be included in the report which the state board of health is already authorized by law to make to the governor. The state board of health may, in its discretion publish any part of said report in any issue of its monthly bulletin.

SEC. 15. When the examination or analysis of the director

of the state laboratory shows that any of the provisions of this act have been violated, notice of that fact together with a copy of the certificate of the findings, shall be furnished to the party or parties from whom the sample was obtained or who executed the guaranty as provided in this act, and a date shall be fixed by the secretary of the board of health at which time said party or parties may be heard before the state board of health or any two members thereof, and the secretary. The hearing shall be held in the city of Sacramento and at least fifteen days notice thereof shall be first served upon the party complained of. These hearings shall be private and confined to questions of fact. The parties interested therein may appear in person or by attorneys and may propound the interrogatories and submit oral or written evidence to show any fault or error in the findings made by the director of the state laboratory. If the examination or analysis be found correct, or if the party or parties fail to appear at such hearing, after notice duly served as provided herein, the secretary of the state board of health shall forthwith transmit a certificate of the facts so found to the district attorney of the county in which said adulterated, mislabeled or misbranded drug was found. No publication thereof shall be made until after said hearing is concluded.

SEC. 16. It is hereby made the duty of the sheriff of any county of this state, on presentation to him of a verified complaint of the violation of any provisions of this act, at once to obtain by purchase a sample of the adulterated, mislabeled or misbranded drug complained of and divide said article into three parts, and each part shall be sealed by the sheriff with a seal provided for that purpose. If the package be less than four pounds, or in volume less than two quarts, three packages of approximately the same size shall be purchased and the marks and tags upon each package noted as above. One sample shall be delivered to the party from whom procured, or to the party guaranteeing said drug. One sample shall be sent to the director of the state laboratory, and the third sample shall be sent to and held under seal by the state board of health.

SEC. 17. For his services hereunder the said sheriff shall be allowed the same fees for travel allowed by law to sheriffs on service of criminal process, together with such compensation as by the board of supervisors of his county may be deemed reasonable, and all accounts expended by him in procuring and transmitting the said samples, which fees and amount expended shall be audited and allowed by the said supervisors and paid by his said county as other bills of said sheriff.

SEC. 18. It shall be the duty of the district attorney of each county to prosecute all violations of the provisions of this act occurring within his county.

SEC. 19. Any person, firm, company or corporation violating any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars, nor more than five hundred dollars, or shall be imprisoned in the county jail for a term not exceeding six months, or by both such fine and imprisonment. Drugs found to be adulterated or misbranded within the meaning of this act may, by order of any court or judge, be seized and destroyed.

SEC. 20. One half of all fines collected by any court or judge for the violations of the provisions of this act shall be paid to the state treasurer and the state treasurer shall deposit such money to the credit of the fund for the maintenance of the state laboratory, to be drawn against by warrants of the state controller upon claims which shall be approved by the state board of examiners.

SEC. 21. No dealer shall be prosecuted under the provisions of this act, when he can establish a guaranty signed by the wholesaler, jobber, manufacturer or other party residing in the United States from whom he purchased such article to the effect, that the same is not adulterated or misbranded within the meaning of this act, designating it. Said guaranty to afford protection, must contain the name and address of the party or parties making the sales of such article to said dealer, and an itemized statement showing the articles purchased; or a general guaranty may be filed with the Secretary of the United States Department of Agriculture by the manufacturer, wholesaler, jobber or other party in the United States and be given a serial number, which number shall appear on each and every package of goods sold under such guaranty with the words "Guaranteed under the food and drugs act, June 30, 1906." In case the wholesaler, jobber, manufacturer or other party making such guaranty to said dealer resides without this state, and it appears from the certificate of the director of the state laboratory that such article or articles were adulterated or misbranded, within the meaning of this act, or the national pure food act, approved June 30, 1906, the district attorney must forthwith notify the attorney-general of the United States of such violation.

SEC. 22. This act shall be in force and effect from and after the first day of January, nineteen hundred and eight.

RULES AND REGULATIONS FOR THE ENFORCEMENT OF THE CALIFORNIA PURE FOODS AND DRUGS ACTS.

GENERAL.

Regulation 1. Short Title of Acts.

The Act entitled "An Act for preventing the manufacture, sale or transportation of adulterated, mislabeled or misbranded foods and liquors and regulating the traffic therein, providing penalties, establishing a State Laboratory for foods, liquors and drugs and making an appropriation therefor," approved March 11, 1907, shall be known and referred to as *"The California Pure Foods Act, March 11, 1907."*

The Act entitled "An Act for the prevention of the manufacture, sale or transportation of adulterated, mislabeled or misbranded drugs, regulating the traffic in drugs and providing penalties for violation thereof," approved March 11, 1907, shall be known and referred to as *"The California Pure Drugs Act, March 11, 1907."*

Regulation 2. Collection of Samples.

Samples of foods, liquors, or drugs shall be collected only by authorized agents of the State Board of Health, who shall be known as "Inspectors."

Samples may be purchased or taken as provided by said Acts. If in bulk, the marks, brands, or tags upon the package, carton, container, wrapper, or accompanying printed or written matter shall be noted. The collector shall also note the names of the vendor and agent through whom the sale was actually made, together with the date of purchase. The collector shall purchase representative samples.

A sample shall be divided into three parts, and each part shall be labeled with identifying marks. All samples shall be sealed with a seal provided for the purpose. If the package be less than four pounds, or in volume less than two quarts, three packages, approximately of the same size, shall be purchased, and the marks and tags upon each package noted as above. One sample shall be delivered to the party from whom procured, or to the party guaranteeing such merchandise; one sample shall be sent to the Director of the State

Laboratory, University of California, Berkeley, California; and the third sample shall be sent to and held under seal by the State Board of Health, Sacramento, California.

Regulation 3. Methods of Analysis.

Unless otherwise ordered by the State Board of Health, the methods of analysis employed shall be those prescribed by the Association of Official Agricultural Chemists and the United States Pharmacopœia.

Regulation 4. Hearings.

Hearings shall be held as prescribed by the terms of said Acts.

Notices and findings required by the said Acts, or either of them, to be served, may be served in the following manner:

1. Upon individuals, by personal service, or if the party can not be found, by leaving the same at his residence or place of business.

2. Upon domestic corporations, by delivering the same to the president, secretary, vice-president, treasurer, or managing agent of such corporation, or if such officer or agent can not be found, by leaving the same at its place of business.

3. Upon foreign corporations, by delivering the same to such officer or agent, or if such officer or agent can not be found, by leaving the same at its place of business within this State, or by leaving the same with the State agent of such corporation.

Upon the hearing the State Board of Health may order a re-examination of the sample, or have new samples drawn for further examination.

When the residence of the party guaranteeing merchandise found to be in violation of the terms of said Acts, or either of them, shall be in a county other than that in which the sample was taken, the Secretary of the State Board of Health shall transmit a certificate of the facts found both to the District Attorney of the county where the sample was taken and to the District Attorney of the county of the residence or place of business of the guarantor.

Regulation 5. Publication.

Publication may be made, after hearing, as provided by the terms of said Acts.

Also, when a judgment of the court shall have been rendered, there may be a publication of the findings of the Director of the State Laboratory, together with the findings of the court. This publication may be made in the form of circulars, notices, or bulletins, as the State Board of Health may determine, not

less than thirty days after the rendering of the judgment; and if an appeal has been taken from the judgment of the court, a notice of the appeal shall accompany the publication.

Regulation 6. Standard for Drugs.

A drug bearing a name recognized in the United States Pharmacopœia or National Formulary, without any further statement respecting its character, shall be required to conform in strength, quality, and purity to the standards prescribed or indicated for a drug of the same name recognized in the United States Pharmacopœia or National Formulary, official at the time.

A drug bearing a name recognized in the United States Pharmacopœia or National Formulary, and branded to show a different standard of strength, quality, or purity, shall not be regarded as adulterated if it conforms to its declared standard.

Regulation 7. Formulas—Proprietary Foods.

Manufacturers of proprietary foods are only required to state upon the label the names and percentages of the materials used, in so far as the State Board of Health may find this to be necessary to secure freedom from adulteration, mislabeling, and misbranding.

The factories in which proprietary foods are made shall be open at all reasonable times to the inspection of raw materials hereinafter provided for.

Regulation 8. Form of Guaranty.

No dealer will be liable to prosecution under the provisions of said Acts, or either of them, when he can establish a guaranty, signed by the wholesaler, jobber, manufacturer, or other party residing in the United States, from whom he purchased such article, to the effect that the same is not adulterated, mislabeled, or misbranded within the meaning of said Acts, designating them.

Such guaranty may be:

1. *A specific guaranty.* This guaranty, to afford protection, must be substantially in the following form:

The undersigned hereby guarantees that the articles of (drugs, foods, or liquors. as the case may be, specifying them), this day sold to (name of dealer) and mentioned in the attached invoice, are not adulterated, misbranded, or mislabeled, within the meaning of the California Pure Foods (or Drugs, as the case may be) Act, March 11, 1907.

Dated .....,

.....

(Name, place of business and address of the guarantor, and statement as to whether guarantor is corporation or co-partnership.)

2. *A general guaranty.* This guaranty, to afford protection, must be substantially in the following form:

I (we), the undersigned, do hereby guarantee that the articles of foods, liquors, and drugs, manufactured, produced, prepared, compounded, packed, distributed, or sold by me (us) (specifying the same as fully as possible), are not adulterated or misbranded within the meaning of the Food and Drugs Act, June 30, 1906, and are not adulterated, mislabeled, or misbranded, within the meaning of the California Pure Foods Act, March 11, 1907, or the California Pure Drugs Act, March 11, 1907.

Dated .....

(Signed, in ink) .....

(Name, place of business and address of the guarantor, and statement as to whether guarantor is corporation or co-partnership).

All guaranties, whether general or special, must be acknowledged before a notary public, and the notary's certificate of the fact attached.

No guaranty will be filed by the State Board of Health, or its secretary; and no serial number will be given by this board, or its secretary.

All general guaranties must be filed with the Secretary of Agriculture, Washington, D. C., who will furnish a serial number, which when used on label with the words "Guaranteed under the Food and Drugs Act, June 30, 1906," will protect the dealer if he purchased of the guarantor.

In the case of persons who have already filed a general guaranty with the Secretary of Agriculture, it will be necessary to file an amended guaranty in the form given above. Accompanying this guaranty should be a letter to the Secretary of Agriculture, giving the serial number already assigned and stating that the guaranty enclosed is an amended guaranty filed to comply with the California law.

ADULTERATION.

Regulation 9. Confectionery.

Mineral substances of all kinds (except as provided in Regulation 14) are specifically forbidden in confectionery, whether they be poisonous or not.

Only harmless color flavors shall be added to confectionery.

The term "narcotic drugs" includes all the drugs mentioned in section 6 of the California Pure Drugs Act, March 11, 1907, and all other drugs of a narcotic nature.

Regulation 10. Substances Mixed and Packed with Foods.

No substance may be mixed or packed with a food product which will reduce or lower its quality or strength. Not excluded under this provision are substances properly used in the preparation of food products for clarification or refining and eliminated in the further process of manufacture.

Regulation 11. Coloring, Powdering, Coating, and Staining.

Only harmless colors may be used in food products.

The reduction of a substance to a powder to conceal inferiority in character is prohibited.

The term "powdered" means the application of any powdered substance to the exterior portions of articles of food, or the reduction of a substance to a powder.

The term "coated" means the application of any substance to the exterior portions of a food product.

The term "stain" includes any change produced by the addition of any substance to the exterior portion of foods which in any way alters their natural tint.

Regulation 12. Natural Poisonous or Deleterious Ingredients.

Any food product which contains naturally a poisonous or deleterious ingredient does not come within the provisions of the California Pure Foods Act, March 11, 1907, except when the presence of such ingredient is due to filth, putrescence, or decomposition.

Regulation 13. External Application of Preservatives.

Poisonous or deleterious preservatives shall only be applied externally, and they and the food products shall be of a character which shall not permit the permeation of any of the preservative to the interior, or any portion of the interior of the product.

When these products are ready for consumption, if any portion of the added preservative shall have penetrated the food product, then such food products shall be subject to the regulations for food products in general.

The preservative applied must be of such a character that, until removed, the food products are inedible.

Regulation 14. Wholesomeness of Colors and Preservatives.

Respecting the wholesomeness of colors, preservatives, and other substances which are added to foods, the findings of the Secretary of Agriculture of the United States, as to the names of those substances which are permitted or inhibited in food products, and adopted as part of the regulations for the enforcement of the Food and Drugs Act, June 30, 1906, shall become a part of these regulations.

Regulation 15. Character of the Raw Materials.

The State Board of Health, its Secretary or duly authorized agent, when deemed necessary by said Board or its Secretary, shall examine the raw materials used in the manufacture of food and drug products, and determine whether any filthy, decomposed or putrid substance is used in their preparation.

MISBRANDING AND MISLABELING.

Regulation 16. Label.

The term "label" applies to any printed, pictorial, or other matter upon or attached to any package of a food or drug product, or any container thereof.

The principal label shall consist, first, of all words which the said Food and Drugs Acts, or either of them, specifically require, to wit: the name of the substance or product; the name of the place of manufacture in the case of food and liquor compounds or mixtures; words which show that the articles are compounds, mixtures, or blends; the words "compound," "mixture," or "blend"; and words designating the substances or their derivatives and proportions required to be named, in the case of drugs. All these required words shall appear upon the principal label with no intervening or explanatory reading matter. Second, if the name of the manufacturer and place of manufacture are given, they shall also appear upon the principal label. Third, elsewhere upon the principal label other matter may appear in the discretion of the manufacturer.

The principal label on foods or drugs for domestic commerce shall be printed in English (except as provided in Regulation 18), with or without the foreign label in the language of the country where the food or drug product is produced or manufactured. The size of type shall not be smaller than 8-point (brevier) caps: *Provided,* that in case the size of the package will not permit the use of 8-point cap type the size of the type may be reduced proportionately.

The form, character, and appearance of the labels, except as provided above, are left to the judgment of the manufacturer.

Descriptive matter upon the label shall be free from any statement, design, or device regarding the article or the ingredients or substances contained therein, or quality thereof, or place of origin, which is false or misleading in any particular.

An article containing more than one food product or active medicinal agent is misbranded if named after a single constituent.

In the case of drugs the nomenclature employed by the United States Pharmacopœia and the National Formulary shall obtain.

The term "design" or "device" applies to pictorial matter of every description, and to abbreviations, characters, or signs for weights, measures, or names of substances.

The use of any false or misleading statement, design, or device shall not be justified by any statement given as the

opinion of an expert or other person, appearing on any part of the label, nor by any descriptive matter explaining the use of the false or misleading statement, design, or device.

The regulation regarding the principal label will not be enforced until July 1, 1908, in the case of labels printed and on hand December 31, 1907, whenever any statement therein contained which is contrary to the said Foods and Drug Acts, March 11, 1907, or either, as to character of contents, shall be corrected by a supplemental, label, stamp, or paster.

Regulation 17. Name and Address of Manufacturer.

The name of the manufacturer or producer, or the place where manufactured, except in case of mixtures and compounds having a distinctive name, need not be given upon the label; but if given, must be the true name and the true place. The words "packed for————," "distributed by————," or some equivalent phrase, shall be added to the label in case the name which appears upon the label is not that of the actual manufacturer or producer, or the name of the place not the actual place of manufacture or production.

When a person, firm, or corporation actually manufactures or produces an article of food or drug in two or more places, the actual place of manufacture or production of each particular package need not be stated on the label, except when, in the opinion of the Secretary of the State Board of Health, the mention of any such place, to the exclusion of the others, misleads the public.

Regulation 18. Character of Name.

A simple or unmixed food or drug product not bearing a distinctive name shall be designated by its common name in the English language, or, if a drug, by any name recognized in the United States Pharmacopœia or National Formulary. No further description of its components or qualities is required, except as to content of alcohol, morphine, etc.

The use of a geographical name shall not be permitted in connection with a food or drug product not manufactured or produced in that place, when such name indicates that the article was manufactured or produced in that place.

The use of a geographical name in connection with a food or drug product will not be deemed a misbranding when by reason of long usage it has come to represent a generic term and is used to indicate a style, type, or brand; but in all such cases the State, Territory, or country where any such article is manufactured or produced shall be stated upon the principal label.

A foreign name which is recognized as distinctive of a product of a foreign country shall not be used upon an article

of domestic origin except as an indication of the type or style of quality or manufacture, and then only when so qualified that it can not be offered for sale under the name of a foreign article.

Regulation 19. Distinctive Name.

A "distinctive name" is a trade, arbitrary, or fancy name which clearly distinguishes a food product, mixture, or compound from any other food product, mixture, or compound.

A distinctive name shall not be one representing any single constituent of a mixture or compound.

A distinctive name shall not misrepresent any property or quality of a mixture or compound.

A distinctive name shall give no false indication of origin, character, or place of manufacture, nor lead the purchaser to suppose that it is any other food or drug product.

Regulation 20. Compounds, Imitations, or Blends Without Distinctive Name.

The term "blend" applies to a mixture of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring and flavoring only.

If any age is stated, it shall not be that of a single one of its constituents, but shall be the average of all constituents in their respective proportions.

Coloring and flavoring can not be used for increasing the weight or bulk of a blend.

In order that colors or flavors may not increase the volume or weight of a blend, they are not to be used in quantities exceeding 1 pound to 800 pounds of the blend.

A color or flavor can not be employed to imitate any natural product or any other product of recognized name and quality.

The term "imitation" applies to any mixture or compound which is a counterfeit or fraudulent simulation of any article of food or drug.

Regulation 21. Articles Without a Label.

It is prohibited to sell or offer for sale a food or drug product bearing no label upon the package or no descriptive matter whatever connected with it, either by design, device, or otherwise, if said product be an imitation of or offered for sale under the name of another article.

Regulation 22. Proper Branding not a Complete Guaranty.

Packages which are correctly branded as to character of contents, place of manufacture, name of manufacturer, or otherwise, may be adulterated, and hence not entitled to protection under said Acts; or their sale, except upon prescription, may be forbidden by the Poisons Act, March 6, 1907.

Regulation 23. Incompleteness of Branding.

A compound shall be deemed misbranded if the label be incomplete as to the names of the required ingredients. A simple product does not require any further statement than the name or distinctive name thereof, except as provided in Regulations 18 and 27.

Regulation 24. Substitution.

When a substance of a recognized quality, commonly used in the preparation of a food or drug product, is replaced by another substance not injurious or deleterious to health, the name of the substituted substance shall appear upon the label.

When any substance which does not reduce, lower, or injuriously affect its quality or strength is added to a food or drug product, other than that necessary to its manufacture or refining, the label shall bear a statement to that effect.

Regulation 25. Waste Materials.

When an article is made up of refuse materials, fragments, or trimmings, the use of the name of the substance from which they are derived, unless accompanied by a statement to that effect, shall be deemed a misbranding. Packages of such materials may be labeled "pieces," "stems," "trimmings," or with some similar appellation.

Regulation 26. Mixtures or Compounds with Distinctive Names.

The terms "mixtures" and "compounds" are interchangeable, and indicate the results of putting together two or more food products.

These mixtures or compounds shall not be imitations of other articles, whether simple, mixed, or compound, or offered for sale under the name of other articles. They shall bear a distinctive name and the name of the place where the mixture or compound has been manufactured or produced.

If the name of the place be one which is found in different States, Territories, or countries, the name of the State, Territory, or country, as well as the name of the place, must be stated.

Regulation 27. Substances Named in Drugs or Foods.

The term "alcohol" is defined to mean common or ethyl alcohol. No other kind of alcohol is permissible in the manufacture of drugs, except as specified in the United States Pharmacopœia or National Formulary.

The words alcohol, morphine, opium, etc., and the quantities and proportions thereof, shall be printed in letters corresponding in size with those prescribed in Regulation 16.

A drug is misbranded in case it fails to bear a statement on the label of the quantity or proportion of any alcohol, morphine, opium, heroin, cocaine, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, or acetanilide, or any derivative or preparation of any such substances contained therein.

A statement of the maximum quantity or proportion of any such substances present will meet the requirements, provided the maximum stated does not vary materially from the average quantity or proportion.

In case the actual quantity or proportion is stated it shall be the average quantity or proportion with the variations noted in Regulation 28.

The following are the principal derivatives and preparations made from the articles which are required to be named upon the label:

ALCOHOL, ETHYL: (Cologne spirits, Grain alcohol, Rectified spirits, and Spirits of wine.)
Derivatives—
Aldehyde, Ether, Ethyl acetate, Ethyl nitrite, and Paraldehyde.
Preparations containing Alcohol—
Bitters, Brandies, Cordials, Elixirs, Essences, Fluid extracts, Spirits. Sirups, Tinctures, Tonics, Whiskies, and Wines.

MORPHINE, ALKALOID:
Derivatives—
Apamorphine, Dionine, Peronine, Morphine acetate, Hydrochlorid, Sulphate, and other salts of Morphine.
Preparations containing Morphine or derivatives of Morphine—
Bougies, Catarrh Snuff, Chlorodyne, Compound powder of morphine, Crayons, Elixirs, Granules, Pills, Solutions, Sirups, Suppositories, Tablets, Triturates, and Troches.

OPIUM, GUM:
Preparations of Opium—
Extracts, Denarcotized opium, Granulated opium, and Powdered opium, Bougies, Brown mixture, Caminative mixtures, Crayons, Dover's powder, Elixirs, Liniments, Ointments, Paregoric, Pills, Plasters, Sirups, Suppositories, Tablets, Tinctures, Troches, Vinegars, and Wines.
Derivatives—
Codeine, Alkaloid, Hydrochlorid, Phosphate, Sulphate, and other salts of Codeine.
Preparations containing Codeine or its salts—
Elixirs, Pills, Sirups, and Tablets.

COCAINE, ALKALOID:
Derivatives—
Cocaine hydrochlorid, Oleate, and other salts.
Preparations containing Cocaine or Salts of Cocaine—
Coca leaves, Catarrh powders, Elixirs, Extracts, Infusion of coca, Ointments, Paste pencils, Pills, Solutions, Sirups, Tablets, Tinctures, Troches, and Wines.

HEROIN:
Preparations containing Heroin—
Sirups, Elixirs, Pills, and Tablets.

ALPHA AND BETA EUCAINE:
Preparations—
Mixtures, Ointments, Powders, and Solutions.

CHLOROFORM:
Preparations containing chloroform—
Chloranodyne, Elixirs, Emulsions, Liniments, Mixtures, Spirits, and Sirups.

CANNABIS INDICA:
Preparations of Cannabis Indica—
Corn remedies, Extracts, Mixtures, Pills, Powders, Tablets, and Tinctures
CHLORAL HYDRATE (CHLORAL U. S. PHARMACOPOEIA, 1890):
Derivatives—
Chloral acetophenonoxim, Chloral alcoholate, Chloralamide, Chloralimide, Chloral orthoform, Choralose, Dormiol, Hypnal, and Uraline.
Preparations containing Chloral Hydrate or its derivatives—
Chloral camphorate, Elixirs, Liniments, Mixtures, Ointments, Suppositories, Sirups, and Tablets.
ACETANILIDE (ANTIFEBRINE, PHENYLACETAMIDE):
Derivatives—
Acetphenetidine, Citrophen, Diacetanilide, Lactophenin, Methoxyacetanilide, Methylacetanilide, Para-Iodoacetanilide, and Phenacetine.
Preparations containing Acetanilide or derivatives—
Analgesics, Antineuralgics, Antirheumatics, Cachets, Capsules, Cold remedies, Elixirs, Granular effervescing salts, Headache powders, Mixtures, Pain remedies, Pills, and Tablets.

Regulation 28. Statement of Weight or Measure.

A statement of the weight or measure of the food contained in a package is not required. If any such statement is printed, it shall be a plain and correct statement of the average net weight or volume, either on or immediately above or below the principal label, and of the size of letters specified in Regulation 17.

A reasonable variation from the stated weight for individual packages is permissible, provided this variation is as often above as below the weight or volume stated. This variation shall be determined from the changes in the humidity of the atmosphere, from the exposure of the package to evaporation or to absorption of water, and the reasonable variations which attend the filling and weighing or measuring of a package.

Regulation 29. Method of Stating Quantity or Proportion.

In the case of alcohol the expression "per cent. of volume" shall mean the average percentage by volume in the finished product. In the case of the other ingredients required to be named upon the label, the expression "quantity" or "proportion" shall mean grains or minims per ounce or fluid-ounce, and also, if desired, the metric equivalents therefor, or milligrams per gram or per cubic centimeter, or grams or cubic centimeters per kilogram or per liter; *provided*, that these articles shall not be deemed misbranded if the maximum of quantity or proportion be stated, as required in Regulation 27.

EXPORTS OF FOODS AND DRUGS.

Regulation 30. Preparation of Products for Export.

(Section 2.)

Food products intended for export may contain added substances not permitted in foods intended for domestic commerce, when the addition of such substances does not conflict with the laws of the countries to which the food product is to be exported and when such substances are added in accordance with the directions of the foreign purchaser or his agent.

The exporter is not required to furnish evidence that goods have been prepared or packed in compliance with the laws of the foreign country to which said goods are intended to be shipped, but such shipment is made at his own risk.

Food products for export under this regulation shall be kept separate and labeled to indicate that they are for export.

If the products are not exported they shall not be allowed to enter domestic commerce.

Regulation 31. Denaturing.

Unless otherwise declared on the invoice or entry, all substances ordinarily used as food products will be treated as such. Shipments of substances ordinarily used as food products intended for technical purposes must be accompanied by a declaration stating that fact, and must be so denatured as to prevent their use as foods.

Regulation 32. Alteration and Amendment of Regulation.

These regulations may be altered or amended at any time, without previous notice.

Adopted by the State Board of Health of the State of California, at a regular meeting of said Board, held January 4, 1908.

N. K. FOSTER,
Secretary of the State Board of Health.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

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VITAL STATISTICS FOR JANUARY.

Births.—For January there were reported 2,065 living births. The population of California in 1908, estimated by the Census Bureau method with slight modifications, is 2,019,519, and for this population the January total represents an annual birth-rate of 12.1.

The January totals were highest for the following counties: Los Angeles, 486; San Francisco, 440; Alameda, 269; Santa Clara, 96; Fresno, 71; and Sacramento, 52.

Births for January were registered in freeholders' charter cities as follows: San Francisco, 440; Los Angeles, 359; Oakland, 147; Berkeley, 45; Sacramento, 43; Alameda, 36; San José, 35; and Pasadena, 33.

Marriages.—The marriages reported for January number 1,720 and for an estimated State population of 2,019,519 represent a rate of 11.7 for the year 1908.

The numbers were greatest for the following counties: San Francisco, 341; Los Angeles, 339; Alameda, 192; Sacramento, 90; Santa Clara, 71; Marin, 65; and Fresno, 64.

Deaths.—Altogether 2,920 deaths, exclusive of stillbirths, were reported for January, the registration being now more complete than it appears to have been heretofore. This total gives an annual death-rate of 17.1 on the basis of an estimated State population of 2,019,519.

The January death totals were highest for the following counties: San Francisco, 630; Los Angeles, 609; Alameda, 300; Santa Clara, 119; Fresno, 103; Sacramento, 98; San Bernardino, 95; San Joaquin, 83; San Diego, 74; and Sonoma, 57.

Deaths for January were reported as follows for the leading cities: San Francisco, 630; Los Angeles, 404; Oakland, 133; San Diego, 69; Sacramento, 67; Berkeley, 54; Pasadena, 51; Stockton, 47; San Bernardino, 43; Fresno, 40; Alameda, 38; and San José, 30.

Causes of Death.—In January there were altogether 486 deaths, or 16.7 per cent of all, from pneumonia and other diseases of the respiratory system; 446, or 15.3 per cent, from various forms of tuberculosis; and 397, or 13.6 per cent, from diseases of the circulatory system. The proportions for pneumonia and tuberculosis were each higher than in the preceding month.

The next most prominent causes of death were diseases of the nervous system, violence, diseases of the digestive system, Bright's disease, epidemic diseases, and cancer.

The leading epidemic disease in the month was not typhoid fever, as usual, but diphtheria. Deaths from epidemic diseases were as follows: Diphtheria and croup, 48; typhoid fever, 37; influenza, 27; and scarlet fever and whooping-cough, each 10.

Further details appear in the following table which gives the number of deaths from certain principal causes reported for January, as well as the proportions from each cause per 1,000 total deaths for both January and December:

Cause of Death.	Deaths: January, 1908.	Proportion per 1,000.	
		January, 1908.	December, 1907.
ALL CAUSES	2,920	1,000.0	1,000.0
Typhoid fever	37	12.7	23.0
Malarial fever	2	0.7	1.7
Smallpox			0.3
Measles	2	0.7	1.7
Scarlet fever	10	3.4	3.4
Whooping-cough	10	3.4	1.7
Diphtheria and croup	48	16.4	14.4
Influenza	27	9.2	5.2
Plague	1	0.3	2.6
Other epidemic diseases	14	4.8	3.7
Tuberculosis of lungs	402	137.7	129.7
Tuberculosis of other organs	44	15.1	17.5
Cancer	132	45.2	53.4
Other general diseases	118	40.4	40.8
Meningitis	58	19.9	16.1
Other diseases of nervous system	206	70.5	76.9
Diseases of circulatory system	397	136.0	138.6
Pneumonia and broncho-pneumonia	374	128.1	107.6
Other diseases of respiratory system	112	38.4	33.0
Diarrhea and enteritis, under 2 years	48	16.4	26.1
Diarrhea and enteritis, 2 years and over	17	5.8	10.1
Other diseases of digestive system	140	48.0	51.1
Bright's disease and nephritis	172	58.9	50.5
Childbirth	27	9.2	6.6
Diseases of early infancy	91	31.2	23.8
Suicide	48	16.4	16.1
Other violence	195	66.8	72.3
All other causes	188	64.4	72.1

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases reported for January for the several geographic divisions of the State, including the metropolitan area, or "Greater San Francisco," in contrast with the rural counties north of Tehachapi:

Geographic Division.	Deaths: January, 1908.									
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Violence	All Other Causes
THE STATE	2,920	151	446	132	264	397	486	205	243	596
Northern California	335	19	32	16	33	40	63	22	38	72
Coast counties	164	6	13	10	23	16	28	12	18	38
Interior counties	171	13	19	6	10	24	35	10	20	34
Central California	1,707	82	233	73	148	261	296	124	152	338
San Francisco	630	21	92	31	35	103	127	41	58	122
Other bay counties	381	19	43	19	36	73	50	30	36	75
Coast counties	188	7	37	8	25	28	27	13	15	28
Interior counties	508	35	61	15	52	57	92	40	43	113
Southern California	878	50	181	43	83	96	127	59	53	186
Los Angeles	609	28	123	33	54	72	92	40	38	129
Other counties	269	22	58	10	29	24	35	19	15	57
Northern and Central California	2,042	101	265	89	181	301	359	146	190	410
Metropolitan area	1,011	40	135	50	71	176	177	71	94	197
Rural counties	1,031	61	130	39	110	125	182	75	96	213

MEETING OF STATE BOARD OF HEALTH.

The adjourned meeting of the State Board of Health was called to meet at 11:00 A. M. February 1st. There were present at that hour Doctors Briggs, Regensburger and Foster. There being no quorum, the time was spent in a general and interesting discussion of the various subjects before the Board, and formulating work for the afternoon session, which was called to order at 1:30 by the President, Dr. Regensburger.

Present, Doctors Briggs, Hart, Regensburger and Foster.

Dr. Briggs moved the following resolution, which was seconded by Dr. Foster, and carried.

Resolved, By the State Board of Health of the State of California, that all Health Officers in the State of California, city, county, town, and city and county Health Officers included, be and they are hereby ordered and directed, immediately and continuously, to enforce and insist upon the enforcement of the provisions of the Act of the Legislature of the State of California "An Act to encourage and provide for the general vaccination in the State of California," approved February 20, 1889; and

That it is the fixed determination to insist upon the enforcement of said Act and the provisions thereof, and to prosecute all persons who shall violate the same.

Dr. Briggs moved and Dr. Hart seconded the following resolution:

That the Secretary be instructed to arrange for a conference in San Francisco at an early date of the officers of the Marine-Hospital Service, State Board of Health, Boards of Supervisors and Trustees of the Bay Counties and all territory in water connection therewith; and

That the officers of the Marine-Hospital Service be requested to address the conference and instruct in the methods and importance of plague eradication, and in as far as possible afford them object lessons in the actual work of eradication; and

That the Secretary urge upon this conference the absolute necessity of providing in the next tax levy for sufficient funds to carry this work to a successful conclusion.

Carried.

Dr Briggs moved and Dr. Hart seconded the following resolution:

Resolved, By the State Board of Health of the State of California, that this Board deems it of the utmost importance that the law forbidding expectoration on the floors of public conveyances and on sidewalks be strictly enforced; and that this Board do and does hereby request the Citizens' Health Committee of the City and County of San Francisco to use every effort in its power to obtain in said City and County a strict enforcement of said law, particularly in the case of street cars.

Carried.

Dr. Hart offered and Dr. Foster seconded the following resolution:

Resolved, By the State Board of Health of the State of California, that, whereas, in the judgment of this Board, it is necessary to prevent the spread of contagious and infectious diseases,

It is hereby ordered, that no old rags, sacks, paper or other old waste, shall be shipped, transported or carried, from or into, any town, city, county, or city and county, in the State of California, unless the same shall first have been thoroughly sterilized by boiling or by steaming, and shall have been inspected by the local or Federal health authorities; and that no such rags, sacks or waste material shall be shipped, transported or carried, or received for shipment, carriage or transportation, by any person, firm or corporation, unless the same is accompanied by the certificate of such Health Officer or authority, that the same have been so sterilized

Carried.

Dr. Foster moved and Dr. Briggs seconded the following resolutions:

Resolved, By the State Board of Health of the State of California, that, whereas, a certain contagious and infectious disease, to-wit, the Bubonic Plague, now exists and has for a long time last past existed, in the City and County of San Francisco, State of California; and

WHEREAS, The said disease is most frequently communicated through the medium of rats and other vermin; and

WHEREAS, It has been ascertained by this Board, and it is the fact, that large quantities of manure have been and are being shipped out of said city and county and said County of Alameda, and into other counties of said State; and

WHEREAS, Dead rats and other vermin have been found in such manure and are frequently conveyed therewith; and

WHEREAS, Said disease has recently existed in the County of Alameda, in said State, and rats and other vermin infected with said disease are yet being found in said County of Alameda; and

WHEREAS, The danger of spreading said disease by and through the shipment of manure as aforesaid and infecting new territory is great; and

WHEREAS, It is in the judgment of this Board necessary to arrest the further spread of said disease;

It is hereby ordered, That no manure shall be shipped, transported, taken or carried from said City and County of San Francisco, or from said County of Alameda or any city therein, to, or into, or received into, any other city, town, county, or city and county, of the State of California, unless such manure and the stable from which it is taken have first been inspected by a member or inspector of the United States Public Health and Marine-Hospital Service, and the said manure and stable found to be sanitary; that no person, firm or corporation, either as principal, agent or otherwise, shall ship, transport, carry, or receive for carriage or transportation, from said city and county, said County of Alameda, or any city therein, to or into any other city, county, or city and county, any manure unless the same shall have first been so inspected, and shall be accompanied by the certificate of a member or inspector of the said United States Public Health and Marine-Hospital Service; that all City and County, City, Town, and County Health Boards, Health Officers and authorities, are hereby directed to enforce this order within their respective jurisdictions; and that this order shall supersede all previous orders as to the same subject.

Carried.

Resolved, That this Board favors and urges the immediate rat-proofing of the water fronts of all cities in the State as a means of preventing the introduction and

propagation of rats, and that the Secretary confer with the Governor as to the best means of attaining this object.

Carried.

Resolved, That the State Board of Health of the State of California invite the Surgeon-General of the United States Public Health and Marine-Hospital Service to call at an early date a conference of that Service with the State Boards of Health in San Francisco.

Carried.

FLEAS.

One of our exchanges, after quoting the article on plague in the last Bulletin, says:—"Now if the Board will tell us how to quarantine against fleas when the open season arrives it will confer a still greater favor." Could we do this in its entirety much suffering could be prevented and many lives saved. Unfortunately, we know of no way to entirely keep rid of fleas, but very much may be done. The very means that will prevent rats from coming to our places will prevent fleas. A basement with a complete cement floor, which is kept clean and free from litter and rubbish, deprives the flea of the dirt in which it will live and breed. Floors and carpets should be kept clean and can be dusted with flea powder or sprayed with an insecticide which will destroy the fleas. Finely powdered air-slaked lime spread on floor or carpet and swept off will, it is claimed, drive them away.

They live and breed in the fur of animals, especially cats, dogs, rats and mice, and if they are allowed in the house fleas must be expected. There are on the market preparations which, sprayed into the hair of an animal, will kill the fleas. If animals must be allowed in the house these should be freely used, for animals are our most prolific source of fleas.

When we have learned to build our houses with concrete basements and foundations, to keep domestic and wild animals outside, banish carpets that can not be taken out and shaken each day, and have our floors built of some smooth material which can not harbor insects, we will have little trouble with fleas, but you can't quarantine the ——— rascals. They have no respect for quarantine regulations, but by persistent effort and not allowing their breeding places to exist they can be kept away.

SMALLPOX.

Reports from all parts of the State show a great number of smallpox cases. Unfortunately, many of them are light and no attention is paid to it, the patient traveling at will about the State, scattering the disease broadcast. Again, the disease is often diagnosed chickenpox, with the usual result of multiplication of cases. There is but one way to check it,—vaccination. This is sure and safe. With the present methods of preparing the vaccine lymph there is no danger, providing it is put on a sterilized arm and kept clean. No person properly vaccinated ever had smallpox, nor did a person ever die with vaccinia. When death has resulted from vaccination it was because an impure lymph was used, or the arm was not properly cleaned and kept clean.

At the present time our vaccine lymph is certified by the United States Government and is pure, and it depends upon the doctor and

patient to do the rest to get absolute and safe protection. Quarantine will not stop the disease. It acts merely as a check, but the undiscovered cases and those purposely suppressed will continue to spread it until every one is thoroughly vaccinated.

Meanwhile, Health Officers should watch closely and insist that the State law, requiring that physicians and others knowing of any communicable disease, even if it be chickenpox or the so-called "Cuban itch," report the same to the health department, be obeyed. The common school authorities are much at fault for not standing straight on the law. They are not responsible for it, but have sworn to enforce it, and should do so, fully and conscientiously.

AN AWAKENING.

Since August last, when it became evident that plague had secured a foothold in San Francisco, the Federal, State and Municipal Health Departments have been active in their efforts to eradicate it and to arouse the attention of the people to the necessity of a general sanitary crusade and the destruction of rats. These departments felt and knew that complete success in stamping out the disease could be accomplished only through the intelligent aid of the householder, but their calls fell upon deaf or heedless ears, and the newspapers referred to them as "political doctors" who had to get up an excitement to hold their jobs, and refused to speak of plague where it was possible to avoid it. The result was entire apathy on the part of the public, and the danger grew.

The Council of the State Medical Society took up the work and called a public meeting for January 18, 1908, which was attended by a few business men. They learned, probably for the first time, the real conditions and at once began to work. On January 28th a well attended mass meeting was held, and a Public Health Committee of twenty-five appointed which went to work, with the result that San Francisco is thoroughly alive to the situation. Meetings of the different trades and occupations, of civic and religious bodies and social organizations are being held, where the dangers and the means of averting them have been explained. Circulars containing directions as to what to do have been sent to all householders, and the large employers of labor have had lectures delivered to their employés.

This is work that will tell and if it can be kept up plague can be stamped out. It is necessary, however, for other cities and towns to follow the lead and waken up, for the rat infection is outside that city and no one knows just how far. There is evidence of this awakening, and the cities across the Bay are beginning to hold similar meetings.

The State Board of Health called the representatives of the County, City and Town governments and Health Officers surrounding the Bay to meet in San Francisco for the purpose of adopting uniform ordinances and providing means to carry on a campaign of sanitation. This meeting was a success and a good deal of interest was shown. Nearly all the counties were represented and a permanent organization known as the Central California Sanitary Commission was instituted. Model ordinances were presented for discussion and committees appointed to perfect them. The Association meets again on Thursday,

February 20th, when the completed ordinances will be presented both for city and county. Copies of these will be furnished to any place in the State that desires them. Many have already applied and we earnestly urge that all over the State the work of better sanitary laws be taken up.

HEALTH ASSOCIATION MEETING.

The San Joaquin Valley Health Officers' Association will hold its semi-annual meeting at Tulare, at 9:00 A. M., March 10, 1908, and have the following excellent program:

Plague in Interior Cities,
DR. RUPERT BLUE,
The Use of the State Hygienic Laboratory,
A. R. WARD, D. V. S.,
Professor of Bacteriology and Director State Hygienic Laboratory, University of California.
Some Thoughts Regarding the Cause and Prevention of Tuberculosis,
DR. C. C. BROWNING, Monrovia.

The last will be a stereopticon lecture.

The Association is fortunate to secure the presence of these men, all experts in their departments. The meeting will be of exceptional interest, and all health officials and others should attend.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The following letter from Surgeon-General Wyman has been sent to all health officials and should be kept in sight. Every one interested in this branch of public health,—and who is not,—should, if possible, attend, but if not, become a member so as to receive the published transactions. They will be worth many times the five-dollar membership fee.

TREASURY DEPARTMENT, WASHINGTON, December 26, 1907.

SIR: The prevention of tuberculosis is engaging the increasing attention of public health authorities and philanthropists throughout the world. There is certainly no more important public health question demanding the activities of sanitary officers at the present time, and it is desirable that our people generally recognize its importance and enlist in the campaign against tuberculosis.

The diffusion of knowledge with respect to the disease is no doubt one of the most important measures that can be instituted by public health officials. With the view to this end, an International Congress on Tuberculosis will be held in Washington, D. C., September 21 to October 12, 1908. At this Congress all phases of the problem will be considered, a number of eminent specialists from abroad having signified their intention to participate in the deliberations.

Section VI will be devoted to the national, state, and municipal control of the disease, and it is urged that all public health officials atend its sessions, participate in the benefits to be derived from discussions of the governmental responsibilities and activities, and as a result be better prepared to assist in a systematic campaign against the disease throughout the country.

Respectfully,

WALTER WYMAN,
Surgeon-General.

TESTS OF RAT VIRUS.

By MARGARET HENDERSON, Assistant in the State Hygienic Laboratory.

The experiments, the results of which are shown in table I, were undertaken to show the efficiency of the various brands of rat virus offered for sale in San Francisco,—Azoa, Parke, Davis & Co.; Ratite, Pasteur Vaccine Co., and Virus Danyz, Deutche Danyz-Virus-Vertriebs-Gesellschaft, Berlin. The testing of a rat virus is not the simple matter that it seems at first thought. When a number of wild rats are kept in the same cage, the mortality from fighting and crowding is heavy. Furthermore, under such conditions, the equal distribution of dosage of the virus is uncertain. It was therefore necessary to keep the rats in individual rat-proof cages, the preparation of which in the number necessary was a matter of considerable trouble and expense.

The rats were obtained from the boards of health of Oakland and San Francisco, and were the ordinary gray or Norway, and black rats, caught by the city rat-catchers. They were put into individual cages on being brought to the laboratory, and were kept so, and fed on grain, for a period of two weeks, during which the mortality from the cage conditions, confinement and cold was very heavy. At the end of this time, when the survivors were supposedly more or less inured to captivity, feeding of the virus was begun. The food was in each case prepared according to the directions accompanying the virus. Oatmeal was used instead of bread wherever that was allowable. They were fed once at the beginning with the virus and then again on the eighth day, and at other times on grain. The rats ate all of the virus that was offered them without hesitation. The checks were fed on grain alone throughout.

TABLE I.

Virus.	Method of Preparation for Feeding	No of Feedings.	No. Fed.	No. Dead.	Possibly Dead of Virus Infection.	Time.
Danyz Virus Deutsche Danyz-Virus-Vertriebs-Gesellschaft, Berlin.	According to directions.	2	5	2	2	35 days.
Danyz-Virus (same as above).	10-day culture in bouillon at 20°, on oatmeal.	2	15	11	6	35 days.
Pasteur Vaccine Co. Ratite.	2 bottles Ratite on 2 pounds oatmeal.	2	15	5	1	35 days.
Pasteur Vaccine Co. Ratite.	1 bottle (large) on 2 pounds oatmeal.	1	11	3	3	19 days.
Azoa (rat virus), Parke, Davis Co. .09879.	2 bottles Azoa, 2 pounds oatmeal.	2	15	7	4	35 days.
Azoa (same as above)	3 bottles Azoa, 3 pounds cornmeal.	2	19	10	4	46 days.
Checks	Grain	------	15	9	----------	35 days.

Of the checks fed only on grain, nine of the fifteen, or 60%, died in the thirty-five days during which they were kept under observation. Of those fed virus, in only one case was the death rate higher, and that was in the case of the Danyz virus, with its rate of 73% of deaths, in the thirty-five days.

All the rats that died were examined post mortem and various causes of death were found that were in no way related to the virus, such as *tape-worm, abscesses* in old wounds and the like. In the column headed, "*Possibly* dead of virus infection" are listed only those rats whose

death was not obviously due to some of these other causes. Whenever the autopsy showed nothing, the death was attributed to the virus and the rat appears in this column. In no case did I observe the lesions that are supposed to be caused by the virus. Considering only these rats that did not obviously at least die of any other cause than virus infection, the highest rate of death is still that produced by the Danyz virus, 40% of the rats fed. This is 20% lower than the rate for the check rats.

As a result of these tests I am unable to recommend any of the preparations tested.

FOOD AND DRUG INSPECTION.

The State Laboratory for the examination of foods and drugs is now established and equipped at the University of California, Berkeley. Samples have been received from several localities, chiefly from San Diego, Los Angeles, San Francisco, and Alameda counties. These are being examined as rapidly as possible.

In connection with the work of the Laboratory the Secretary of the Board and the Director of the Laboratory are daily in receipt of a large number of inquiries relating to the proper labeling of foods and drugs under the new law. In order that all such matters should receive due and proper consideration, it was decided by the State Board of Health to appoint a committee on Food and Drug Inspection, consisting of the President of the Board, the Secretary, and the Director of the Laboratory. This committee meets at the Laboratory in Berkeley every two weeks for the purpose of discussing the various questions incidental to the food and drug inspection.

It is certainly gratifying to note, from the large variety of communications and their contents, the evident desire of the varied commercial interests to conform to the requirements of the law. The many different inquiries may be classed under several different heads, as stated herewith:

A. The labeling of coal-tar colors allowed by the law.

By the terms of Regulation 14, adopted by the State Board of Health, coal-tar dyes which will be allowed are those permitted under the rulings of the U. S. Secretary of Agriculture. Those coloring matters are named and the circumstances under which they may be used are set forth in U. S. Food Inspection Decisions No. 76 and No. 77. These decisions may be had upon application to the Secretary of Agriculture, Washington, D. C.

The coal-tar dyes allowed by law as designated in U. S. Food Inspection Decision 76, are given numbers, the numbers preceding the names referring to the number of the dye in question as listed in A. G. Green's edition of the Schultz-Julius Systematic Survey of Organic Coloring Matters, published in 1904. The list is as follows:

Red shades:
- 107. Amaranth.
- 56. Ponceau. 3 R.
- 517. Erythrosin.

Orange shade:
- 85. Orange I.

Yellow shade:
- 4. Naphthol Yellow S.

Green shade:
- 435. Light green S. F. yellowish.

Blue shade:
- 692. Indigo disulfoacid.

The general answer to the question relating to coal-tar dyes may be summarized as follows:

1. No coal-tar dyes may be used in foods except those specifically enumerated in U. S. Food Inspection Decisions 76 and 77.

2. Although a coal-tar dye may be one there enumerated, it may not be used in foods unless it has been tested and certified, given a lot number and labeled as required by said decisions.

3. Dealers using or selling dyes which do not conform to U. S. Food Inspection Decisions 76 and 77 are not protected by the guaranties mentioned in the California acts and regulations. These dyes are not in themselves a food product, and the provisions as to guaranty do not apply to them, although in the case of food colored by the use of forbidden dyes and sold under guaranty, the purchasing dealer would be protected.

4. Although complying in every respect with the requirements of said decisions, a coloring matter may not be used to color a food so as to deceive or mislead the purchaser, or to conceal inferiority.

B. The labeling of drugs with particular reference to the percentage of alcohol contained therein.

This matter, it would seem, is covered by Section 6, subdivision second, of the Drug act, which, in part, states that a drug shall be deemed mislabeled if the package, as offered for sale at retail or wholesale, fail to bear a statement on the label of the per cent of volume of alcohol, etc. The words "about 20 per cent alcohol" would not be in conformity to the law.

Section 6 of the drug act also answers another question submitted to the Board concerning the labeling of a *mixture* of drugs, some of which contain alcohol, with the percentage of alcohol contained in said mixture.

C. The labeling of drugs as to the contents of packers,. etc., of certain ingredients.

The questions under this head are fully answered by Sections 5 and 6 of the drug act. The former is explicit with reference to false or misleading statements, and the latter, in connection with Regulation 27, "Substances named in Drugs and Foods," contains sufficient data for the guidance of those desiring such information.

D. The labeling of "Soda Water" artificially colored with coal-tar dyes.

All such beverages are in violation of the law, unless the dye used is one permitted by U. S. Food Inspection Decisions 76 and 77, and has been properly tested, certified, guaranteed and labeled as required by said decisions.

It must be remembered, however, that a coloring matter may not be used to color a food so as to deceive or mislead the purchaser, even though the dye complies in every respect with the requirements of the law.

E. The relabeling of Foods and Drugs on hand previous to January 1, 1908. The use of stickers, etc.

This point is covered by an extract from U. S. Food Inspection Decision No. 78, reading:—"Any person has a right to use a label which is not false or deceptive in any particular, even though this result is arrived at through the use of stickers, erasures, or other suitable means. Attention is directed, however, to the fact that misleading and deceptive statements must be obliterated. In other words, it is not sufficient, in the opinion of the Board, that a deceptive statement should be allowed to remain in one portion of the label with a corrective statement in another portion of the label."

See also Regulation No. 16, adopted by the State Board of Health.

In this connection, it might be well to state that Regulation 17 of the California laws, "Name and Address of Manufacturer," and U. S. Food Inspection Decision 46, "Fictitious Firm Names," contain the following statements which answer other questions received along this line:

When a proper name, other than that of the manufacturer, is placed upon a label, it must not be used in the possessive. For instance,

CHARLES GASTON'S
OLIVE OIL
BORDEAUX

can only be properly used on an oil manufactured by Charles Gaston at Bordeaux. The same is true if the designation

GASTON'S
OLIVE OIL
BORDEAUX

be employed.

On the other hand, the word "Gaston" might be used in an adjective sense, and not in the possessive case as qualifying the words "Olive Oil," in a manner that would indicate that it represented a brand and not a manufacturer, as

GASTON OLIVE OIL.
or
OLIVE OIL, GASTON BRAND.

In such case, however, neither the given name nor initial should be employed. The word "Gaston" should be in the same type as "Olive Oil" and in equal prominence, thus forming a part of the label.

The phrase "Olive Oil, Charles Gaston Brand," may be used, in which case the name of the actual manufacturer should appear, in order that no false indication of the name of the person or firm manufacturing the product may be given.

F. The labeling of compounds, or mixtures of one food product with another.

This matter is partly covered by California Regulation 19, "Distinctive Name," and by Regulation 26, "Mixtures or Compounds with Distinctive Names."

U. S. Food Inspection Decision 75, "The Labeling of Mixtures of cane and maple syrup," fully illustrates and answers many of the questions included under this head. This is referring to mixtures of oats and wheat, lard and beef suet, etc.

When both maple and cane sugars are used in the production of sirup the label should be varied according to the relative proportion of the different ingredients. The same of the sugar present in excess of 50 per cent of the total sugar content should be given the greater prominence, on the label; that is, it should be given first. For example, a sirup of the sugars of which consist of 51 per cent cane sugar and 49 per cent maple sugar, would be properly branded as "Sirup made from Cane and Maple Sugar," or as "Cane and Maple Sirup." The terms, "Maple Sugar" and "Maple Sirup" may only be used on the label as part of the name when those substances are present in substantial quantities as ingredients. They should not appear on the label as part of the name when only a small quantity of these substances is used to give a maple flavor to the product. A cane sirup containing only enough maple sirup or maple sugar to give a maple flavor is properly labeled as "Cane Sirup, Maple Flavor," "Cane Syrup Flavored with Maple."

Whenever it is necessary to declare cane sugar (sucrose) on a label it should be declared as cane sugar and not as white sugar.

With reference to the matter of the use of cereals in the manufacture of sausage, it may be said that the fact must be so stated on the label, although the kind of cereal used need not be so designated.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

Entered as second-class matter August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Vol. 3. SACRAMENTO, FEBRUARY, 1908. No. 9

STATE BOARD OF HEALTH.

MARTIN REGENSBURGER, M.D., *President*, San Francisco
WALLACE A. BRIGGS, M.D., *Vice-President*, Sacramento
N. K. FOSTER, M.D., *Secretary* ..... Sacramento
F. K. AINSWORTH, M.D. ..... San Francisco
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STATE BUREAU OF VITAL STATISTICS.

N. K. FOSTER, M.D., *State Registrar*..Sacramento | GEORGE D. LESLIE, *Statistician*.....Sacramento

STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*..... University of California, Berkeley

STATE FOOD AND DRUG LABORATORY.

M. E. JAFFA, M. S., *Director* ..... University of California, Berkeley

CALIFORNIA PUBLIC HEALTH ASSOCIATION.

The California Public Health Association will hold its annual meeting at Coronado Monday, April 20th, at 10 A. M. There will be no papers, but the following subjects will be presented for discussion, which will be opened by the gentlemen designated. After the opening a full and free discussion of the question is desired, and all are requested to come prepared to take part.

PURE FOODS AND DRUGS.—Discussion opened by Prof. M. E. Jaffa, Director of State Pure Food and Drug Laboratory.

GENERAL SANITATION OF CITIES AND TOWNS.—Discussion opened by Dr. Rupert Blue, Passed Assistant Surgeon, in command, San Francisco.

A DEPARTMENT OF EPIDEMIOLOGY IN THE STATE BOARD OF HEALTH.—Discussion opened by Dr. W. F. Snow, Stanford University.

The meeting will be the day before the first session of the State Medical Society, and a full attendance is expected.

Arrangements have been made with the railroads to give a rate of a fare and one third for the round trip to any one attending the State Medical Society, and these rates will be granted to the members attending the Public Health Association. Buy a first-class single-trip ticket to San Diego at tariff rates, requesting of the agent a receipt certificate therefor, which, when certified to by the Secretary of the Medical Society, will be authority for the agent at San Diego to sell a return ticket for one third full rate. Tickets for the going trip may be purchased April 10th to 23d, inclusive, and certificates will be honored

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HON. J. E. GARDNER, *Attorney* ..... Watsonville

STATE BUREAU OF VITAL STATISTICS.

N. K. FOSTER, M.D., *State Registrar*..Sacramento | GEORGE D. LESLIE, *Statistician*..... Sacramento

STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director*..... University of California, Berkeley

STATE FOOD AND DRUG LABORATORY.

M. E. JAFFA, M. S., *Director* ..... University of California, Berkeley

VITAL STATISTICS FOR JANUARY.

Births.—For January there were reported 2,065 living births. The population of California in 1908, estimated by the Census Bureau method with slight modifications, is 2,019,519, and for this population the January total represents an annual birth-rate of 12.1.

The January totals were highest for the following counties: Los Angeles, 486; San Francisco, 440; Alameda, 269; Santa Clara, 96; Fresno, 71; and Sacramento, 52.

Births for January were registered in freeholders' charter cities as follows: San Francisco, 440; Los Angeles, 359; Oakland, 147; Berkeley, 45; Sacramento, 43; Alameda, 36; San José, 35; and Pasadena, 33.

Marriages.—The marriages reported for January number 1,720 and for an estimated State population of 2,019,519 represent a rate of 11.7 for the year 1908.

The numbers were greatest for the following counties: San Francisco, 341; Los Angeles, 339; Alameda, 192; Sacramento, 90; Santa Clara, 71; Marin, 65; and Fresno, 64.

Deaths.—Altogether 2,920 deaths, exclusive of stillbirths, were reported for January, the registration being now more complete than it appears to have been heretofore. This total gives an annual death-rate of 17.1 on the basis of an estimated State population of 2,019,519

for return April 20th to 25th, inclusive, for points in California south of Santa Barbara and Bakersfield, and from April 20th to May 5th to points north of and including Santa Barbara and Bakersfield.

CENTRAL CALIFORNIA HEALTH OFFICERS' ASSOCIATION.

The Central California Health Officers' Association held its semi-annual session at Tulare, March 10th, with the best program in its existence. The attendance was good and keen interest was shown from first to last.

The meeting was held in conjunction with the San Joaquin Valley Medical Society, which gave the Sanitary Association a portion of its time, a courtesy which was much appreciated, and we hope that the quality of the addresses did not detract from their extremely interesting and able program.

PLAGUE.

Since January 1st there have been but five authenticated cases of Plague in San Francisco, with one death, and one death in Oakland. The rat infection is yet extensive, being from one to two per cent. They are being rapidly and extensively killed, and the general crusade against them will, if continued, soon exterminate them. Their complete extermination must be the end aimed at, not only in California but in other states, for the Plague is abroad in the world and its means of dissemination must be recognized and destroyed.

Never in the history of this coast, if indeed in the country, has there been such a spirit of sanitation. The cities and towns are spending vast sums of money in cleaning up, strict laws are being enacted and enforced, and better than this is the intense interest taken by the people. They are individually seeing that their *own* place is clean.

VACCINATION.

"No person properly vaccinated ever had smallpox," says the recent bulletin from the State Board of Health. No doubt about it, but tens of thousands who have been improperly vaccinated have had something worse than smallpox, and that is what is the matter. When the State Board of Health can guarantee that the stuff that is put into the blood of a healthy person will not give that person some disease then there will be a different proposition. But when they vaccinate and the child or adult is given lockjaw, or some bad disease that is incurable, or dies from the effect of vaccination, is Dr. Foster or somebody else responsible?—Hanford Sentinel

We quote the above from the Hanford Sentinel, and violate a rule of never answering a personal reference simply because this particular item might lead to great harm by making people suppose that vaccine virus is impure.

All vaccine farms in the United States are regularly inspected by an officer of the United States Public Health and Marine Hospital Service and samples are taken at frequent intervals from the dealers in different parts of the country and carefully examined. If the cleanliness of the farm and the purity of the product is satisfactory the Government certifies to it, and no physician would think of using any but a certified vaccine.

The danger is *not* in the impurity of the vaccine matter, but in the *manner* of putting it into the arm and the care of the arm after it is in

First. *Allow no vaccination to be done except by some one who knows how and is "surgically clean."*

Second. *Keep the arm "clean" and protected from contact with soiled clothing or other dirt, and never allow it to be scratched with the finger nails.*

The purity of the vaccine is guaranteed. Now if these two points are strictly observed there will be no cases of lockjaw or other disease resulting from vaccination.

It is not the vaccine that causes trouble, but the dirt.

STATE BOARD OF HEALTH.

The special monthly meeting of the State Board of Health was held at the Board's office, Capitol Building, March 7, 1908, at 10 A. M.

Present—President Martin Regensburger, Vice-President W. A. Briggs, Dr. O. Stansbury, Dr. N. K. Foster, and Attorney J. C. Gardner.

Absent—Drs. F. K. Ainsworth, A. C. Hart, and W. Le Moyne Wills.

Minutes of last meeting read and approved.

President Regensburger reported that the anti-expectoration law was not being enforced in San Francisco, and the Secretary was directed to write to the local Board of Health urging that steps be taken to enforce it.

Mr. Harris, of San Francisco, who buys and deals in old rags, appeared before the Board explaining that his rags are all disinfected and urged that outside towns be allowed to ship to him.

Mr. Miller, who buys and handles rags and old sacks, also appeared and urged a modification of the rules forbidding their shipment. The Board were not disposed to modify their recent order without further information and the matter was referred to Dr. Regensburger.

The Attorney and Secretary were directed to draw a resolution covering the subject of rag picking, and report at the next meeting.

The spread of smallpox was discussed, and Dr. Briggs moved and Dr. Stansbury seconded the following:

Resolved, That the Secretary notify the various boards of school trustees that the law requiring pupils to be vaccinated must be enforced, and that evidence be collected and placed in the hands of the district attorney for prosecution where the law is disregarded.

Carried.

Dr. W. C. Hobdy, Passed Assistant Surgeon and United States Quarantine Officer at San Francisco, was present and reported his work, which, as a rule, is going smoothly. All boats and ships are fumigated every fourteen days, and the belief is expressed that no rats are being shipped out of San Francisco. The work is more necessary now than when begun in September, as more rats are infected. One line, the Monticello, running to Vallejo, is giving trouble and refuses to be fumigated.

The Attorney assured the Board of its rights, and it was moved and seconded and carried, That this Board commends the action of the Quarantine Officer in enforcing the order of this Board, and instructs him to continue the fumigation, and that if the Monticello Company refuses to comply their boats be tied up.

The Secretary was instructed to notify all Health Officers around the Bay that the order requiring fumigation of vessels must be enforced,

and Dr. Briggs offered, and Dr. Stansbury seconded, the following resolutions, which were carried:

Resolved by the state Board of Health of the State of California, That whereas, there now exists in the City and County of San Francisco and in the County of Alameda, State of California, a contagious, infectious and communicable disease, to-wit: the Plague; and

That, in the judgment of said Board, it is necessary for the protection and preservation of the public health and to prevent the spread of said disease; that

It is hereby ordered that the Health Boards, and chief executive Health Officers, in and for the several counties, cities, towns, and cities and counties of the State of California, be and they and each of them are hereby directed and required strictly to enforce within their respective jurisdictions the rules and regulations as to fumigation and disinfection of vessels and water craft adopted and promulgated by resolution of this Board on the 24th day of September, 1907; and

That the Secretary of this Board be directed to transmit to such local health officials a copy of this resolution and a copy of said resolution of September 24, 1907.

Resolved by the State Board of Health of the State of California, that the Commandant at Mare Island, California, be and he is requested to enforce within his jurisdiction the following rule, promulgated by this Board by resolution dated September 24, 1907, and relating to the fumigation and disinfection of vessels and water craft for the purpose of preventing the spread of Bubonic Plague, to-wit: That no vessel or craft such as is in said resolution of September 24, 1907, referred to, shall be permitted to land, tie up, touch at or establish any communication with any wharf, dock, pier, landing, or other place in the State of California, unless the captain or other officer or person in charge of such vessel or craft shall first produce a certificate from the Secretary of the State Board of Health or an Inspector or other subordinate, showing fumigation as in said resolution of September 24, 1907, required; and that the Secretary of this Board be directed to transmit to said Commandant a copy of this resolution and a copy of said resolution of September 24, 1907.

Resolved, That cities, towns and counties, bordering on the Bay of San Francisco, or the inland navigable waters of the State communicating therewith, which, within thirty days from this date, March 7, 1908, have not passed or are not enforcing these ordinances or their practical equivalent shall be considered by this Board an imminent menace to the public health and amenable to Section 2979 of the Health Laws of the State of California.

Resolved, That all rat-infested landings, wharves, docks, piers and pierhouses situated on the Bay of San Francisco or the inland navigable waters connected therewith and all rat-infested grain elevators, warehouses, mills, slaughter houses, markets, stables and all other rat-infested premises where foods or food stuffs of any kind whatever, whether for human or animal use, are stored, placed or kept, and situated within one half mile of said landings, etc., are an imminent menace to the public health, and if efficient measures for disinfestation are not taken within thirty days shall be quarantined by the Secretary of this Board.

Resolved, That the Secretary be instructed to secure the publication of these resolutions in the public press and to notify the various Boards of Supervisors and Trustees of cities, towns and counties bordering on these waters.

The question of revising our sanitary laws was discussed, and a committee consisting of Dr. Briggs (chairman), Secretary Foster, and Attorney Gardner was appointed to investigate and report.

The Secretary reported the discontinuance of inspection work at Napa that more exposed places might be covered, and the action was approved by the Board.

Dr. Briggs moved, and Dr. Stansbury seconded, that the next Legislature be memorialized to issue bonds for the purpose of making all wharfs in San Francisco rat-proof. Carried.

Adjourned.

propagation of rats, and that the Secretary confer with the Governor as to the best means of attaining this object.

Carried.

Resolved, That the State Board of Health of the State of California invite the Surgeon-General of the United States Public Health and Marine-Hospital Service to call at an early date a conference of that Service with the State Boards of Health in San Francisco.

Carried.

FLEAS.

One of our exchanges, after quoting the article on plague in the last Bulletin, says:—"Now if the Board will tell us how to quarantine against fleas when the open season arrives it will confer a still greater favor." Could we do this in its entirety much suffering could be prevented and many lives saved. Unfortunately, we know of no way to entirely keep rid of fleas, but very much may be done. The very means that will prevent rats from coming to our places will prevent fleas. A basement with a complete cement floor, which is kept clean and free from litter and rubbish, deprives the flea of the dirt in which it will live and breed. Floors and carpets should be kept clean and can be dusted with flea powder or sprayed with an insecticide which will destroy the fleas. Finely powdered air-slaked lime spread on floor or carpet and swept off will, it is claimed, drive them away.

They live and breed in the fur of animals, especially cats, dogs, rats and mice, and if they are allowed in the house fleas must be expected. There are on the market preparations which, sprayed into the hair of an animal, will kill the fleas. If animals must be allowed in the house these should be freely used, for animals are our most prolific source of fleas.

When we have learned to build our houses with concrete basements and foundations, to keep domestic and wild animals outside, banish carpets that can not be taken out and shaken each day, and have our floors built of some smooth material which can not harbor insects, we will have little trouble with fleas, but you can't quarantine the ——— rascals. They have no respect for quarantine regulations, but by persistent effort and not allowing their breeding places to exist they can be kept away.

SMALLPOX.

Reports from all parts of the State show a great number of smallpox cases. Unfortunately, many of them are light and no attention is paid to it, the patient traveling at will about the State, scattering the disease broadcast. Again, the disease is often diagnosed chickenpox, with the usual result of multiplication of cases. There is but one way to check it,—vaccination. This is sure and safe. With the present methods of preparing the vaccine lymph there is no danger, providing it is put on a sterilized arm and kept clean. No person properly vaccinated ever had smallpox, nor did a person ever die with vaccinia. When death has resulted from vaccination it was because an impure lymph was used, or the arm was not properly cleaned and kept clean.

At the present time our vaccine lymph is certified by the United States Government and is pure, and it depends upon the doctor and

patient to do the rest to get absolute and safe protection. Quarantine will not stop the disease. It acts merely as a check, but the undiscovered cases and those purposely suppressed will continue to spread it until every one is thoroughly vaccinated.

Meanwhile, Health Officers should watch closely and insist that the State law, requiring that physicians and others knowing of any communicable disease, even if it be chickenpox or the so-called "Cuban itch," report the same to the health department, be obeyed. The common school authorities are much at fault for not standing straight on the law. They are not responsible for it, but have sworn to enforce it, and should do so, fully and conscientiously.

AN AWAKENING.

Since August last, when it became evident that plague had secured a foothold in San Francisco, the Federal, State and Municipal Health Departments have been active in their efforts to eradicate it and to arouse the attention of the people to the necessity of a general sanitary crusade and the destruction of rats. These departments felt and knew that complete success in stamping out the disease could be accomplished only through the intelligent aid of the householder, but their calls fell upon deaf or heedless ears, and the newspapers referred to them as "political doctors" who had to get up an excitement to hold their jobs, and refused to speak of plague where it was possible to avoid it. The result was entire apathy on the part of the public, and the danger grew.

The Council of the State Medical Society took up the work and called a public meeting for January 18, 1908, which was attended by a few business men. They learned, probably for the first time, the real conditions and at once began to work. On January 28th a well attended mass meeting was held, and a Public Health Committee of twenty-five appointed which went to work, with the result that San Francisco is thoroughly alive to the situation. Meetings of the different trades and occupations, of civic and religious bodies and social organizations are being held, where the dangers and the means of averting them have been explained. Circulars containing directions as to what to do have been sent to all householders, and the large employers of labor have had lectures delivered to their employés.

This is work that will tell and if it can be kept up plague can be stamped out. It is necessary, however, for other cities and towns to follow the lead and waken up, for the rat infection is outside that city and no one knows just how far. There is evidence of this awakening, and the cities across the Bay are beginning to hold similar meetings.

The State Board of Health called the representatives of the County, City and Town governments and Health Officers surrounding the Bay to meet in San Francisco for the purpose of adopting uniform ordinances and providing means to carry on a campaign of sanitation. This meeting was a success and a good deal of interest was shown. Nearly all the counties were represented and a permanent organization known as the Central California Sanitary Commission was instituted. Model ordinances were presented for discussion and committees appointed to perfect them. The Association meets again on Thursday,

February 20th, when the completed ordinances will be presented both for city and county. Copies of these will be furnished to any place in the State that desires them. Many have already applied and we earnestly urge that all over the State the work of better sanitary laws be taken up.

HEALTH ASSOCIATION MEETING.

The San Joaquin Valley Health Officers' Association will hold its semi-annual meeting at Tulare, at 9:00 A. M., March 10, 1908, and have the following excellent program:

Plague in Interior Cities,
DR. RUPERT BLUE,
The Use of the State Hygienic Laboratory,
A. R. WARD, D. V. S.,
Professor of Bacteriology and Director State Hygienic Laboratory, University of California.
Some Thoughts Regarding the Cause and Prevention of Tuberculosis,
DR. C. C. BROWNING, Monrovia.

The last will be a stereopticon lecture.

The Association is fortunate to secure the presence of these men, all experts in their departments. The meeting will be of exceptional interest, and all health officials and others should attend.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The following letter from Surgeon-General Wyman has been sent to all health officials and should be kept in sight. Every one interested in this branch of public health,—and who is not,—should, if possible, attend, but if not, become a member so as to receive the published transactions. They will be worth many times the five-dollar membership fee.

TREASURY DEPARTMENT, WASHINGTON, December 26, 1907.

SIR: The prevention of tuberculosis is engaging the increasing attention of public health authorities and philanthropists throughout the world. There is certainly no more important public health question demanding the activities of sanitary officers at the present time, and it is desirable that our people generally recognize its importance and enlist in the campaign against tuberculosis.

The diffusion of knowledge with respect to the disease is no doubt one of the most important measures that can be instituted by public health officials. With the view to this end, an International Congress on Tuberculosis will be held in Washington, D. C., September 21 to October 12, 1908. At this Congress all phases of the problem will be considered, a number of eminent specialists from abroad having signified their intention to participate in the deliberations.

Section VI will be devoted to the national, state, and municipal control of the disease, and it is urged that all public health officials atend its sessions, participate in the benefits to be derived from discussions of the governmental responsibilities and activities, and as a result be better prepared to assist in a systematic campaign against the disease throughout the country.

Respectfully,

WALTER WYMAN,
Surgeon-General.

closed for a week or so. This means a great and unnecessary loss to the children of the community. Taking a culture from the throat of every person who had been exposed, or from every school child, if necessary, and sending it to the laboratory, would make it possible to separate the infected from the uninfected quickly, and the school could be kept open quite safely for the uninfected, and the others readmitted as subsequent cultures showed their throats to have become clean. We have been able to keep one school with an enrollment of 575 children open in the face of an epidemic causing several deaths, and by keeping the school open, so to control the infected persons that the epidemic was checked most speedily. Similar work is in progress at present in two towns.

Every physician in the State is at liberty, and is urged, to make use of the laboratory freely. Any sore throat may be a mild diphtheria, which will become more serious if communicated to another individual. The germs do not disappear from some throats after clinical recovery as soon as from others, and those cases that are infected for a long time, though well and about, are a fruitful source of new cases of the disease. On the other hand, the germs disappear very quickly from some throats, and the extension of quarantine through the usual three weeks is an unnecessary hardship. One case of diphtheria in a community is not a good reason for excluding all the children from the school. In all of these contingencies, the laboratory's report will help, and yet there are but fifty-four towns in the State that have sent specimens to the laboratory during the past year.

DEPARTMENT OF PURE FOODS AND DRUGS.

PROF. M. E. JAFFA, DIRECTOR.

FOOD AND DRUG INSPECTION.

During the past month many more samples of food materials have been received by the State Laboratory, increasing the total number to 381. Of these upwards of 60 samples are vinegars, representing the different commercial types. The work done so far indicates considerable mislabeling, and in view of this it might not be out of place to reprint, for the proper guidance of those interested, the definition of the different vinegars. It should be distinctly understood by manufacturers and dealers that *all misbranding* or *mislabeling* are *violations of the law.*

VINEGAR.

1. *Vinegar, cider vinegar, apple vinegar,* is the product made by the alcoholic and subsequent acetous fermentations of the juice of apples, is laevo-rotatory, and contains not less than four (4) grams of acetic acid, not less than one and six tenths (1.6) grams of apple solids, of which not more than fifty (50) per cent are reducing sugars, and not less than twenty-five hundredths (.25) of a gram of apple ash in one hundred cubic centimeters (20°C.), and the water-soluble ash from one hundred (100) cubic centimeters (20°C.) of the vinegar contains not less than ten (10) milligrams of phosphoric acid, and requires not less than thirty (30) cubic centimeters of decinormal acid to neutralize its alkalinity.

2. *Wine vinegar, grape vinegar,* is the product made by alcoholic and subsequent acetous fermentations of the juice of grapes and contains in one hundred (100) cubic centimeters (20°C.) not less than four (4) grams of acetic acid, not less than one (1) gram of grape solids, and not less than thirteen hundredths (.13) of a gram grape ash.

3. *Malt vinegar* is the product made by alcoholic and subsequent acetous fermentations, without distillation, of an infusion of barley malt or cereals whose starch has been converted by malt, is dextro-rotatory, and contains in one hundred (100) cubic centimeters (20°C.) not less than four (4) grams acetic acid, not less than two (2) grams of solids, and not less than two tenths (.2) of a gram of ash; and the water soluble ash from one hundred (100) cubic centimeters (20°C.) of the vinegar contains not less than nine (9) milligrams of phosphoric acid, and requires not less than four (4) cubic centimeters of decinormal acid to neutralize its alkalinity.

4. *Sugar vinegar* is the product made by the alcoholic and acetous fermentations of solutions of sugar, sirup, molasses, or refiners' sirup, and contains, in one hundred (100) cubic centimeters (20°C.), not less than four (4) grams of acetic acid.

5. *Glucose vinegar* is the product made by the alcoholic and acetous fermentations of solutions of starch, sugar and glucose, is dextro-rotatory, and contains in one hundred (100) cubic centimeters (20°C.) not less than four (4) grams of acetic acid.

6. *Spirit vinegar, distilled vinegar, grain vinegar,* is the product made by the acetous fermentation of dilute distilled alcohol, and contains in one hundred (100) cubic centimeters (20°C.) not less than four (4) grams of acetic acid.

A large number of "soda waters" or carbonated drinks have been examined and found to contain artificial coloring matter, without the use of such being declared on the label. The manufacturers of such beverages should bear in mind that such practices are violations of sections four and five of the Pure Foods Act, March 11, 1907. For information concerning the use of the coal-tar colors allowed by law, reference is suggested to the monthly bulletin of this Board of January, 1908.

The United States Department of Agriculture has recently issued a decision on the labeling of bitters, which, as it answers some questions submitted to the State Laboratory, is here reprinted in full.

LABELING OF BITTERS.

In Section 6 of the Food and Drugs Act of June 30, 1906, the term "drug," as defined in the act, includes "all medicinal preparations recognized in the United States Pharmacopœia or National Formulary for internal or external use and *any substance or mixture of substances intended to be used for the cure, mitigation, or prevention of disease in either man or other animals.*"

Notwithstanding this comprehensive definition, it appears from a large correspondence on this subject that there is still some uncertainty as to whether or not certain commodities should be classed as drug products, and of this type are the alcoholic products known as "bitters."

It is necessary to determine definitely whether or not "bitters," for example, are to be classed as drugs. This is necessary for the reason that under Section 8 of the Food and Drugs Act a drug is deemed misbranded "if the package fails to bear a statement on the label of the quantity or proportion of any alcohol * * * contained therein."

On investigation of labels that are found on "bitters" it has been discovered that in most cases they are recommended for various ailments. For example, they are said to "aid digestion," "allay irritation of the nerves," "excite the appetite to a marvelous degree," "prolong life." Again, labels bear the statements "is not only a delicious beverage, but also a wonderful tonic," "valuable in intermittent fever, illness due to the spleen, stomach catarrh, diarrhea, colic, cramps, vomiting, hypochondria, etc." These are examples of common phrases found on labels. "Bitters" are frequently prescribed in the same manner as medicines in general. For example, "to be taken in tablespoonful every hour," "increase the dose if the effect is not immediate," etc.

It is well known that certain substances may be used both as foods and as drugs. It is claimed by some that certain products advertised as medicinal products are not sold and consumed on account of their medicinal properties, but merely as alcoholic beverages. This, however, does not seem to be consistent with the information found on some of the labels.

In a case of this kind the classification will be made from a study of the literature published in connection with the article and by ascertaining the uses to which it is put. When a "bitters" is described on the carton or label attached to the bottle, or any advertising matter accompanying the package, as possessing any medicinal or tonic properties, or if in fact it does possess such value, it must of necessity be classed as a drug product and, in consequence of this classification, bear a statement of the quantity or proportion of any alcohol contained therein. The method of stating the proportion of alcohol is that of per cent by volume, as suggested in regulation 28 of Circular 21 of the Office of the Secretary. In Food Inspection decision 52 is the suggested order in which the statements required by law should occur on a label.

This food inspection decision is promulgated so that those interested in the importation of "bitters" may understand how the department is obliged to rule in such cases, the decision as to whether a product be a food or a drug depending not only upon what claims are made for it, but also upon the uses to which it is put. This same principle must *guide the* Department in its interpretation of the law governing similar

products which have the dual function of serving as both foods and drugs.

United States Food Inspection Decision 86 concerning the definition of "Original Unbroken Package" is too long to reprint in full in this bulletin. The following excerpts are given herewith as being of special interest to manufacturers and dealers in this State. Complete copies of this decision can be obtained upon application to the Director of the State Food and Drug Laboratory, Berkeley.

Regulation 2 of the Rules and Regulations for the Enforcement of the Food and Drugs Act (Circular No. 21, Office of the Secretary, United States Department of Agriculture) declares:

> The term "original unbroken package" as used in this act is the original package, carton, case, can, box, barrel, bottle, phial, or other receptacle put up by the manufacturer, to which the label is attached, or which may be suitable for the attachment of a label, making one complete package of the food or drug article. The original package contemplated includes both the wholesale and the retail package.

This definition of original unbroken package was inserted in the regulations for the purpose of facilitating the administration of the act. It was intended to be, or at all events is, a guide to the inspectors who purchase the samples throughout the United States, as to the nature of an unbroken package. Upon the basis of this regulation the inspectors have collected a large number of samples, but when an examination of some of the cases has been made, with prosecutions in view, it has been found that no action could be taken because the package bought was not an original package, though apparently so upon a reasonable interpretation of the regulation. Furthermore, the department is advised that the food commissioners of some of the states, guided by a literal interpretation of the regulation, have refrained from enforcement of their laws upon all packages apparently embraced within its terms.

It is believed that the discussion of the question and the cases cited will prove helpful to those United States attorneys to whom cases are reported for seizure in original packages under Section 10 of the Food and Drugs Act.

To prevent the further misconception of the scope of the regulation, and for the information of those concerned, it is the purpose of this decision to set out the interpretation the Department has made of it, and the authorities therefor.

Construed in the light of judicial determinations of the question, the terms "original unbroken packages" (as set out in the regulation and as used in Sections 2 and 10 of the act) and "unbroken packages" (as used in Section 3 of the act) will be restricted to such a package containing the food and drug product as has been prepared for shipment or transportation and shipped or transported, as an entirety or unit, from a state, territory, or the District of Columbia, and delivered to the consignee, remaining his property in the identical form and condition in which it was shipped or transported. After arrival in a state and delivery to the consignee, if any part of the contents of the package be removed, or if the package be *transferred* by the consignee, it is no longer an original package. The retail package is not an original package unless it bears the characteristics set forth above.

It is not practicable to frame a universally accurate and satisfactory definition of an "original package." No statute has done so, and the department disclaims any attempt to do so in its construction of the

terms. The question must be determined largely upon each case as it arises, with the guidance of the authoritative decisions of the courts, which for the sake of elucidating and explaining the subject are presented in this decision.

United States Food Inspection Decision 87, "Labeling of Corn Sirup," answers several communications received by the Secretary of the State Board of Health, it is therefore quoted in full.

"We have each given careful consideration to the labeling, under the pure-food law, of the thick, viscous sirup obtained by the incomplete hydrolysis of the starch of corn, and composed essentially of dextrose, maltose, and dextrine.

"In our opinion it is lawful to label this sirup as 'Corn Sirup,' and if to the corn sirup there is added a small percentage of refiner's sirup, a product of the cane, the mixture, in our judgment, is not misbranded if labeled 'Corn Sirup with Cane Flavor.'

"It must be remembered, however, that the label 'Corn Sirup' can only be applied to the sirup manufactured from starch of corn; the sirup obtained from starch of potatoes or any grain could not be so labeled."

In view of the many inquiries concerning the use of sulphur dioxid and benzoate of soda in foods and food products, United States Food Inspection Decision 89 is herewith presented.

Amendment to Food Inspection Decision 76, Relating to the Use in Foods of Benzoate of Soda and Sulphur Dioxid.

The question of the addition to food of minute quantities of benzoate of soda and of sulphur dioxid will be certified immediately by the Secretary of Agriculture to the referee board of consulting scientific experts.

Pending determination by the referee board of the wholesomeness or unwholesomeness of these substances, their use will be allowed under the following restrictions:

Benzoate of soda, in quantities not exceeding one tenth of one per cent, may be added to those foods in which generally heretofore it has been so used. The addition of benzoate of soda shall be plainly stated upon the label of each package of such food.

No objection will be made to foods which contain the ordinary quantities of sulphur dioxid if the fact that such foods have been so prepared is plainly stated upon the label of each package.

An abnormal quantity of sulphur dioxid placed in food for the purpose of marketing an excessive moisture content will be regarded as fraudulent adulteration, under the Food and Drugs Act of June 30, 1906, and will be proceeded against accordingly.

Food Inspection Decision No. 76, issued July 13, 1907, is hereby amended accordingly.

CALIFORNIA STATE BOARD OF HEALTH.

MONTHLY BULLETIN.

Entered as second-class matter August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

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STATE BOARD OF HEALTH.

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STATE BUREAU OF VITAL STATISTICS.

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STATE HYGIENIC LABORATORY.

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STATE FOOD AND DRUG LABORATORY.

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NOTICE TO COUNTY RECORDERS.

Registration of Marriages.—The attention of County Recorders is directed to the statistics on Increase of Marriages in this month's Bulletin. If the decreases or small increases shown for some counties are due to incomplete registration, the Recorders concerned must exert themselves to compel ministers and justices to properly register all marriages performed by them. Recorders can readily keep track of these matters by co-operating with the County Clerks who issue the necessary marriage licenses.

DEPARTMENT OF VITAL STATISTICS.

GEORGE D. LESLIE, STATISTICIAN.

INCREASE OF MARRIAGES: 1906 TO 1907.

Summary.—The marriages registered in California totaled 23,005 for 1907 against 21,317 for 1906, a gain of 1,688, or 7.9 per cent.

The per cent of increase was 9.7 for Northern California and 7.0 for Central California, or 7.4 for both together, against 9.2 for Southern California.

The high rate of gain for San Francisco, 17.5 per cent, in contrast with a slight decrease for the transbay counties, indicates the return of population to the peninsula.

Other high rates of gain were 12.4 per cent for the counties south of Tehachapi except Los Angeles, and 11.6 for the coast counties of Northern California.

Of the individual counties, thirty-eight showed increases in marriages, one no change, and eighteen showed slight decreases.

Marriages increased by at least one-fifth, 20.0 per cent, in the following eleven counties: Inyo, Tehama, Kern, Butte, Napa, Calaveras, Mono, Orange, Madera, Humboldt, and Kings.

The increases were also above the State average, 7.9 per cent, in fourteen other counties, as follows: San Francisco, Yuba, Santa Barbara, Modoc, Fresno, Sacramento, San Bernardino, Monterey, Tulare, Nevada, Glenn, Santa Cruz, Mendocino, and San Diego.

Comparison of the ranking of the leading counties in marriages registered shows notable rises in rank for the following counties: Orange, Humboldt, Santa Barbara, Butte, Napa, Kern, Kings, and Tehama.

Geographic Divisions.—Altogether 23,005 marriages were reported by County Recorders to the California State Bureau of Vital Statistics for 1907 as compared with 21,317 for 1906, these being the first calendar years covered by the operations of the present registration law enacted in 1905. The increase of marraiges for 1907 over 1906 was 1,688, a gain of 7.9 per cent.

In the counties north of Tehachapi the marraiges reported for 1907 totaled 15,728 against 14,650 for 1906, an increase of 1,078 or 7.4 per cent. For Southern California the totals were 7,277 in 1907 and 6,667 in 1906, a gain of 610, or 9.2 per cent.

The per cent of increase for San Francisco was no less than 17.5. This high rate of gain indicates that the inhabitants who were driven elsewhere by the great fire in April, 1906, were re-establishing themselves in homes in the new San Francisco throughout 1907. Confirmation appears from the fact that the group of other bay counties, instead of showing the usual increase of marriages, suffered a slight decrease for 1907 as compared with 1906. The net gain for the entire metropolitan area was thus 7.4 per cent, or the same as for the rural counties north of Tehachapi.

In Southern California, Los Angeles shows an increase in marriages of 7.6 per cent, against no less than 12.4 per cent for the surrounding counties.

The rate of gain for Northern California alone was 9.7, being as much as 11.6 for the coast counties and 7.8 for the interior counties. The corresponding rate for Central California alone was 7.0, the per cent of increase for the coast counties other than the metropolitan area being 3.3 and that for the interior counties being 7.9, or the same as for the entire State.

The following table shows the number and per cent of increase in marriages for the several geographic divisions of the State, in 1906 to 1907:

Increase of Marriages, for Geographic Divisions: 1906 to 1907.

Geographic Division.	Marriages.		Increase.	
	1907.	1906.	Number.	Per Cent.
THE STATE	23,005	21,317	1,688	7.9
Northern California	2,278	2,077	201	9.7
Coast counties	1,168	1,047	121	11.6
Interior counties	1,110	1,030	80	7.8
Central California	13,450	12,573	877	7.0
San Francisco	4,158	3,539	619	17.5
Other bay counties	4,169	4,217	48*	1.1*
Coast counties	1,697	1,642	55	3.3
Interior counties	3,426	3,175	251	7.9
Southern California	7,277	6,667	610	9.2
Los Angeles	4,847	4,506	341	7.6
Other counties	2,430	2,161	269	12.4
Northern and Central California	15,728	14,650	1,078	7.4
Coast counties	11,192	10,445	747	7.2
Interior counties	4,536	4,205	331	7.9
Metropolitan area	8,327	7,756	571	7.4
Rural counties	7,401	6,894	507	7.4

*Decrease.

Counties.—The table on the following page gives the increase (or decrease) of marriages for each county, as well as the per cent of increase for those showing gains in 1907 over 1906.

The apparently high rate of gain shown for Inyo County is due only to the fact that complete returns for 1907 are contrasted with incomplete ones for 1906.

The per cents of increase in marriages were highest for the following counties: Tehama, 39.3; Kern, 35.5; Butte, 31.4; Napa, 27.2; Calaveras, 26.8; Mono, 25.0; Orange, 21.8; Madera, 20.4; Humboldt, 20.3; Kings, 20.0; San Francisco, 17.5; Yuba, 17.1; Santa Barbara, 16.1; Modoc, 15.2; Fresno, 14.8; Sacramento, 13.9; San Bernardino, 13.4; Monterey and Tulare, each 12.6; Nevada, 12.5; Glenn, 11.1; Santa Cruz, 10.4; Mendocino, 8.5; and San Diego, 8.1. Each of these twenty-four counties shows a rate of gain above the average rate for the State, 7.9 per cent.

There were also increases in marriages, but at rates below the State average, in the following thirteen counties arranged in descending order: Los Angeles, 7.6; San Luis Obispo, 6.0; Sonoma, 4.7; Riverside, 4.2; Stanislaus, 4.0; Tuolumne, 3.3; Ventura, 3.1; Lake, 3.0; Placer, 2.3; Contra Costa and San Mateo, each 2.0; Merced, 1.3; and Santa Clara, 0.5. For Plumas County exactly the same number of marriages were reported in 1907 as in 1906.

There were decreases in marriages for 1907 as compared with 1906 in the following eighteen counties arranged alphabetically: Alameda, Alpine, Amador, Colusa, Del Norte, El Dorado, Lassen, Marin, Mariposa, San Benito, San Joaquin, Shasta, Sierra, Siskiyou, Solano, Sutter, Trinity, and Yolo. In most of these cases, however, the decreases were only slight.

Increase of Marriages, for Counties: 1906 to 1907.

County.	Marriages.		Increase.	Decrease.	Per Cent of Increase.
	1907.	1906.			
CALIFORNIA	23,005	21,317	1,688		7.9
Alameda	3,009	3,019		10	
Alpine		1		1	
Amador	66	74		8	
Butte	222	169	53		31.4
Calaveras	52	41	11		26.8
Colusa	34	38		4	
Contra Costa	200	196	4		2.0
Del Norte	8	12		4	
El Dorado	45	48		3	
Fresno	630	549	81		14.8
Glenn	40	36	4		11.1
Humboldt	320	266	54		20.3
Inyo	40	13	27		207.7
Kern	206	152	54		35.5
Kings	144	120	24		20.0
Lake	34	33	1		3.0
Lassen	27	33		6	
Los Angeles	4,847	4,506	341		7.6
Madera	59	49	10		20.4
Marin	703	750		47	
Mariposa	15	17		2	
Mendocino	191	176	15		8.5
Merced	81	80	1		1.3
Modoc	38	33	5		15.2
Mono	5	4	1		25.0
Monterey	196	174	22		12.6
Napa	206	162	44		27.2
Nevada	117	104	13		12.5
Orange	638	524	114		21.8
Placer	90	88	2		2.3
Plumas	21	21			
Riverside	299	287	12		4.2
Sacramento	950	834	116		13.9
San Benito	47	58		11	
San Bernardino	458	404	54		13.4
San Diego	628*	581	47		8.1
San Francisco	4,158	3,539	619		17.5
San Joaquin	470	520		50	
San Luis Obispo	196	185	11		6.0
San Mateo	257	252	5		2.0
Santa Barbara	274	236	38		16.1
Santa Clara	961	956	5		0.5
Santa Cruz	297	269	28		10.4
Shasta	144	161		17	
Sierra	8	16		8	
Siskiyou	120	127		7	
Solano	154	186		32	
Sonoma	398	380	18		4.7
Stanislaus	104	100	4		4.0
Sutter	29	33		4	
Tehama	124	89	35		39.3
Trinity	11	18		7	
Tulare	250	222	28		12.6
Tuolumne	62	60	2		3.3
Ventura	133	129	4		3.1
Yolo	93	105		12	
Yuba	96	82	14		17.1

*Includes 5 marriages in Imperial County, formed August 15, 1907.

County Totals.—The following table shows the counties for which at least 100 marriages were reported to the State Bureau of Vital Statistics in 1907 and 1906, respectively:

Rank of Counties with at Least 100 Marriages: 1907 and 1906.

1907.			1906.		
Rank.	County.	Marriages.	Rank.	County.	Marriages.
	THE STATE	23,005		THE STATE	21,317
1.	Los Angeles	4,847	1.	Los Angeles	4,506
2.	San Francisco	4,158	2.	San Francisco	3,539
3.	Alameda	3,009	3.	Alameda	3,019
4.	Santa Clara	961	4.	Santa Clara	956
5.	Sacramento	950	5.	Sacramento	834
6.	Marin	703	6.	Marin	750
7.	Orange	638	7.	San Diego	581
8.	Fresno	630	8.	Fresno	549
9.	San Diego	* 628	9.	Orange	524
10.	San Joaquin	470	10.	San Joaquin	520
11.	San Bernardino	458	11.	San Bernardino	404
12.	Sonoma	398	12.	Sonoma	380
13.	Humboldt	320	13.	Riverside	287
14.	Riverside	299	14.	Santa Cruz	269
15.	Santa Cruz	297	15.	Humboldt	266
16.	Santa Barbara	274	16.	San Mateo	252
17.	San Mateo	257	17.	Santa Barbara	236
18.	Tulare	250	18.	Tulare	222
19.	Butte	222	19.	Contra Costa	196
20.	Kern	206	20.	Solano	186
21.	Napa	206	21.	San Luis Obispo	185
22.	Contra Costa	200	22.	Mendocino	176
23.	Monterey	196	23.	Monterey	174
24.	San Luis Obispo	196	24.	Butte	169
25.	Mendocino	191	25.	Napa	162
26.	Solano	154	26.	Shasta	161
27.	Kings	144	27.	Kern	152
28.	Shasta	144	28.	Ventura	129
29.	Ventura	133	29.	Siskiyou	127
30.	Tehama	124	30.	Kings	120
31.	Siskiyou	120	31.	Yolo	105
32.	Nevada	117	32.	Nevada	104
33.	Stanislaus	104	33.	Stanislaus	100
	Remaining 24 counties	1,001		Remaining 24 counties	977

* Includes 5 marriages in Imperial County, formed August 15, 1907.

Each year there were thirty-three counties with at least 100 marriages, Tehama replacing Yolo in the list in 1907. While there were only eighteen counties reporting 200 marriages for 1906, there were twenty-two reporting this number for 1907, the additional counties being Butte, Kern, Napa, and Contra Costa.

Comparison of the ranking of these leading counties in the number of marriages registered shows notable gains in certain cases. Thus, Orange County rose from ninth place to seventh, passing San Diego and Fresno, while Humboldt rose from fifteenth to thirteenth, passing Riverside and Santa Cruz. Santa Barbara displaced San Mateo in sixteenth place in the ranking. Butte rose from twenty-fourth place to nineteenth, passing Contra Costa, Solano, San Luis Obispo, Mendocino, and Monterey; Napa rose from twenty-fifth place to twenty-first, passing these same counties; and Kern rose from twenty-seventh place to twentieth, passing these counties and Shasta besides. Likewise, Kings rose from thirtieth place to twenty-seventh, passing Ventura and Siskiyou. Finally, Tehama rose from below thirty-third place to thirtieth, passing Siskiyou, Yolo, Nevada, and Stanislaus.

VITAL STATISTICS FOR MARCH.

Births.—For March there were reported 2,135 living births, as compared with 2,021 for February. For an estimated State population of 2,019,519 the March total represents an annual birth-rate of 12.5 against 12.6 for February.

The March totals, as reported to the State Bureau of Vital Statistics, were highest for the following counties: Los Angeles, 579; Alameda, 314; San Francisco, 296; Santa Clara, 100; Fresno, 61; San Diego, 58; and Sacramento and San Bernardino, each 51.

Births, so far as registered in the leading freeholders' charter cities for March, were as follows: Los Angeles, 388; San Francisco, 296; Oakland, 150; Alameda, 58; Berkeley, 52; Pasadena, 40; Sacramento, 36; San Diego, 33; Fresno, 31; San José, 29; and Eureka, 26.

Marriages.—The marriages reported for March number 1,470 against 1,532 for February, and represent an annual rate of only 8.6, as compared with 9.6 for the preceding month.

The March totals were greatest for the following counties: Los Angeles, 313; San Francisco, 294; Alameda, 185; Santa Clara, 70; Sacramento, 59; and Fresno, 50.

Deaths.—Altogether 2,866 deaths, exclusive of stillbirths, were reported for March, against 2,759 for February. The annual death-rate for March is 16.8, as compared with 17.2 for February.

The March death totals were highest for the following counties: San Francisco, 607; Los Angeles, 546; Alameda, 308; San Diego, 106; San Joaquin, 101; Sacramento, 98; Santa Clara, 92; Fresno, 82; and San Bernardino, 73.

Deaths for March were reported as follows for the principal cities: San Francisco, 607; Los Angeles, 356; Oakland, 149; San Diego, 89; Sacramento, 61; Stockton, 52; Pasadena, 44; Berkeley, 42; San José, 35; and Alameda and Fresno, each 31.

Causes of Death.—In March there were altogether 463 deaths, or 16.2 per cent of all, from various forms of tuberculosis; 442, or 15.4 per cent, from diseases of the circulatory system; and 366, or 12.8 per cent, from pneumonia and other diseases of the respiratory system. As compared with February, March showed an increase in the proportion of deaths from heart disease and a decrease in the proportion for pneumonia.

Other notable causes of death in March were violence, diseases of the nervous system, diseases of the digestive system, Bright's disease, epidemic diseases, and cancer.

As in recent months, diphtheria and croup led typhoid fever with 39 deaths for the former against 35 for the latter. March deaths from other epidemic diseases were as follows: Influenza, 27; measles, 17; whooping cough, 13; malarial fever and scarlet fever, each 5; and scattering, 11.

Further details appear in the following table, which gives the number of deaths from certain principal causes reported for March, as well as the proportions from each cause per 1,000 total deaths for both March *and February:*

Cause of Death.	Deaths: March.	Proportion per 1,000.	
		March.	February.
ALL CAUSES	2,866	1,000.0	1,000.0
Typhoid fever	35	12.2	10.5
Malarial fever	5	1.7	0.7
Smallpox	1	0.3	0.7
Measles	17	5.9	2.9
Scarlet fever	5	1.7	2.5
Whooping-cough	13	4.5	4.7
Diphtheria and croup	39	13.6	16.0
Influenza	27	9.4	11.2
Plague	------	------	0.4
Other epidemic diseases	10	3.5	2.9
Tuberculosis of lungs	384	134.0	135.5
Tuberculosis of other organs	79	27.6	14.5
Cancer	143	49.9	55.1
Other general diseases	114	39.8	34.8
Meningitis	65	22.7	24.3
Other diseases of nervous system	199	69.4	85.2
Diseases of circulatory system	442	154.2	132.6
Pneumonia and broncho-pneumonia	286	99.8	109.8
Other diseases of respiratory system	80	27.9	37.0
Diarrhea and enteritis, under 2 years	42	14.7	10.5
Diarrhea and enteritis, 2 years and over	16	5.6	6.2
Other diseases of digestive system	131	45.7	50.7
Bright's disease and nephritis	173	60.4	54.4
Childbirth	35	12.2	10.2
Diseases of early infancy	77	26.9	29.7
Suicide	71	24.8	27.2
Other violence	206	71.9	75.8
All other causes	171	59.7	54.0

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases reported for March for the several geographic divisions of the State, including the metropolitan area, or "Greater San Francisco," in contrast with the rural counties north of Tehachapi:

Geographic Division.	Deaths: March.									
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Violence	All Other Causes
THE STATE	2,866	152	463	143	264	442	366	189	277	570
Northern California	375	20	40	19	41	56	51	28	44	76
Coast counties	159	4	20	6	21	26	19	15	13	35
Interior counties	216	16	20	13	20	30	32	13	31	41
Central California	1,639	88	237	82	146	272	214	103	158	339
San Francisco	607	27	82	29	47	130	79	45	64	104
Other bay counties	401	16	57	21	40	60	53	22	38	94
Coast counties	183	15	26	7	16	30	21	12	16	40
Interior counties	448	30	72	25	43	52	61	24	40	101
Southern California	852	44	186	42	77	114	101	58	75	155
Los Angeles	546	24	112	28	43	84	58	41	52	104
Other counties	306	20	74	14	34	30	43	17	23	51
Northern and Central California	2,014	108	277	101	187	328	265	131	202	415
Metropolitan area	1,008	43	139	50	87	190	132	67	102	198
Rural counties	1,006	65	138	51	100	138	133	64	100	217

DEPARTMENT OF BACTERIOLOGY.

DR. A. R. WARD, DIRECTOR.

NOTES ON DIPHTHERIA.

In the face of threatened diphtheria epidemics it is the general practice to close the schools as a precautionary measure. This is too often done without a careful investigation of the real source of the trouble. The following account of a small epidemic that has come to our attention during the past year serves well to illustrate the value of getting at the source of infection in an epidemic and the futility of blindly closing the schools.

Diphtheria was apparently introduced into the town in question by a visitor who had recently recovered from the disease elsewhere. One case was reported on November 14th shortly after the arrival of the visitor in the family. No more cases were reported for six weeks.

From December 25, 1907, until January 25, 1908, cases were reported in fifteen families. Six of these families consumed milk from the R——— Dairy. One family of these six families was reported on December 25th and the other five were reported during the five days, January 15th to 20th. Two other families gave a history of probable spread from the families on the milk route in question. Seven infected families in town gave no history of connection with the milk route.

The suspicions of the health officer were directed against the dairy by the number of infected families who were among its patrons and by the fact that few families consuming the milk escaped. A considerable portion of the milk was used by two cheap restaurants and if any cases were contracted from the milk in these establishments, it was not possible to trace them.

The only people handling the milk were a man, his wife and daughter. Cultures were made from the nose and throat of each one. The mother and daughter gave positive cultures from the throat, while the man gave negative results. Bacilli persisted in the throat of the woman for three weeks in spite of constant effort to clear up the infection. No history of previous clinical diphtheria could be established nor were clinical manifestations recognizable. The fact that the woman frequently milked the cows and delivered the milk, is of interest. Upon the discovery of the bacillus carriers at the dairy, the local authorities took measures to prevent any further contamination of the milk.

Almost at the first appearance of diphtheria in the town the schools had been closed in spite of the fact that there was no evidence pointing to their being a source of infection. The cases in town were either adults, children not attending school, or were among those attributable to the milk route.

The facts seemed to justify the opening of the school for those children who would pass an examination of the nose and throat for diphtheria bacilli. The examination of all children, several hundred, present on the first day that the schools were open, showed only about *4 per cent harboring* diphtheria bacilli. This percentage of bacillus

carriers confirmed the conclusion that the school children were not primarily involved in the epidemic, for a normal community in the absence of a diphtheria epidemic will give a similar or very slightly lower percentage. Later in an uncontrolled epidemic, the percentage will rise to 15 or more and the exclusion of so large a number of children seriously demoralizes school work. Throughout the period that the school was under surveillance, many of the children who were refused admission because they showed diphtheria bacilli were found to come from families that had previously had cases of diphtheria.

By means of this bacteriological control of attendance, the schools were kept open with perfect safety to the children attending, in the face of conditions that had led the local health authorities to feel it necessary to close them. The experience confirms our feeling that bacteriological examination of children kept in schools is a much safer means of preventing an epidemic than the practice of closing schools. A wholesale examination will reveal the bacillus carriers in most cases and make it possible to subject them to proper restraint and treatment. The fact that this class of mild cases is responsible for the spread of diphtheria is now well recognized. Closing the schools merely sends these bacillus carriers and mild, unrecognized cases out to convey infection wherever they chance to come in contact with susceptible children. This wholesale sort of examination of people concerned in an epidemic seems a very satisfactory way of finding and isolating the source of the trouble, and of stopping the epidemic with a minimum of inconvenience and loss of time to those who are not infected.

DEPARTMENT OF PURE FOODS AND DRUGS.

PROF. M. E. JAFFA, DIRECTOR.

FOOD AND DRUG INSPECTION.

It has previously been stated that the State Board of Health would adopt, as far as possible, an educational policy in connection with the enforcement of the pure food and drug laws. In this connection, therefore, it is thought advisable to issue what might be termed warnings from time to time, as occasion and circumstances warrant. The need of such a warning has been emphasized during the past month in reference to the collection of samples of macaroni, etc., for analysis at the State Laboratory. It would appear, from correspondence received at the Laboratory, that certain manufacturers are acting in ignorance of the necessity of properly labeling their products. This is particularly true in regard to weights. All manufacturers should bear in mind that this point is specifically covered by Subdivision 3, Section 6, of the Pure Food Act, which reads:

Food and liquor shall be deemed mislabeled or misbranded within the meaning of this act in any of the following cases:

* * * * * * * * * * * * * * *

Third. If in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package.

In this connection, Regulation 28, Statement of Weights or Measures, may also be quoted:

A statement of the weight or measure of the food contained in a package is not required. If any such statement is printed, it shall be a plain and correct statement of the average net weight or volume, either on or immediately above or below the principal label, and of the size of letters specified in Regulation 17.

A reasonable variation from the stated weight for individual packages is permissible, provided this variation is as often above as below the weight or volume stated. This variation shall be determined from the changes in the humidity of the atmosphere, from the exposure of the package to evaporation or to absorption of water, and the reasonable variations which attend the filling and weighing or measuring of a package.

In order that the term "package" as used in these acts shall not be misunderstood, it might not be out of place here to quote Section 7:

"The term 'package' as used in this act shall be construed to include any phial, bottle, jar, demijohn, carton, bag, case, can, box, or barrel, or any receptacle, vessel or container of whatsoever material or nature which may be used by a manufacturer, producer, jobber, packer, or dealer, for inclosing any article of food."

Another note of warning is necessary in regard to the labeling of food materials colored with the permitted coal-tar dyes. All such goods should be labeled "artificially colored." At the same time it

must be remembered that in the use of these artificial coloring matters, Regulation 11, quoted below, must be strictly observed.

Regulation 11. Coloring, Powdering, Coating, and Staining.

Only harmless colors may be used in food products.

The reduction of a substance to a powder to conceal inferiority in character is prohibited.

The term "powdered" means the application of any powdered substance to the exterior portions of articles of food, or the reduction of a substance to a powder.

The term "coated" means the application of any substance to the exterior portions of a food product.

The term "stain" includes any change produced by the addition of any substance to the exterior portion of foods which in any way alters their natural tint.

In the use of these artificial coloring materials the following excerpts from the Pure Food Act must also be conformed to:

Section 6. Food and liquor shall be deemed mislabeled or misbranded within the meaning of this act in any of the following cases:

* * * * * * * * * * * * * * *

Second. If it be labeled or branded or *colored* so as to deceive or mislead, or tend to deceive or mislead, the purchaser, or if it be falsely labeled in any respect, or if it purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package.

Section 4. Food shall be deemed adulterated within the meaning of this act, in any of the following cases:

* * * * * * * * * * * * * * *

Fourth. If it be mixed, *colored,* powdered, coated or stained in any manner whereby damage or inferiority is concealed.

It might be well again to emphasize to all concerned that none but the permitted colors as declared in Food Inspection Decision No. 76 will be allowed in food products.

Another warning seems to be called for in reference to the labeling of butter. There are some creameries in this State which are making butter from cream gathered at different points in their locality, and labeling that butter as having been made at other and distinct creameries. This practice is in direct violation of Subdivision Fifth, Section 6 of the Pure Food Act, which reads as follows:

Section 6. Food and liquor shall be deemed mislabeled or misbranded within the meaning of this act in any of the following cases:

* * * * * * * * * * * * * * *

Fifth. When any package bears the name of the manufacturers, jobbers or sellers, or the grade or class of the product, it must bear the name of the real manufacturers, jobbers or sellers and the true grade or class of the product, the same to be expressed in clear and distinct English words in legible type, *provided,* that an article of food shall not be deemed misbranded, if it be a well-known food product of a nature, quality and appearance, and so exposed to public inspection as not to deceive or mislead or tend to deceive or mislead a purchaser,

and not misbranded and not of the character included within the definitions 1 to 4 of this section.

Regulation 16 is also violated in this connection, the paragraph in question reading: Descriptive matter upon the label shall be free from any statement, design, or device regarding the article or the ingredients or substances contained therein, or quality thereof, or place of origin, which is false or misleading in any particular.

The law is further violated in respect to Regulation 17, Name and Address of Manufacturer, which reads:

The name of the manufacturer or producer, or the place where manufactured, except in the case of mixtures and compounds having a distinctive name, need not be given upon the label; but if given, must be the true name and the true place. The words "packed for————," "distributed by————," or some equivalent phrase, shall be added to the label in case the name which appears upon the label is not that of the actual manufacturer or producer, or the name of the place not the actual place of manufacture or production.

When a person, firm or corporation actually manufactures or produces an article of food or drug in two or more places, the actual place of manufacture or production of each particular package need not be stated on the label, except when, in the opinion of the Secretary of the State Board of Health, the mention of any such place, to the exclusion of the others, misleads the public.

During the past month two hundred eighty-seven samples of miscellaneous foods and food products have been received at the Laboratory for examination and analysis, making a total of six hundred thirty-eight.

In view of the fact that many inquiries have been received at the Laboratory in regard to the preservation of eggs, the following method, used with success by Dr. Shutt of the Ottawa Experimental Farm, is given:

Experiments in egg preservation were begun at the Experimental Farm, Ottawa, in 1898, and have been continued every season since that date. In the course of these experiments, trials have been made with more than twenty-five different fluids and preparations that have been proposed or sold as egg preservatives. The work of these seven years has shown conclusively the superiority of lime-water over all the preservatives which we have tested.

THE PREPARATION OF LIME-WATER.

The solubility of lime at ordinary temperature is 1 part in 700 parts of water. Such a solution would be termed saturated lime-water. Translated into pounds and gallons, this means 1 lb. of lime is sufficient to saturate 70 gallons of water. However, owing to impurities in commercial lime, it is well to use more than is called for in this statement. It may not, however, be necessary, if good, freshly burnt quicklime can be obtained, to employ as much as was first recommended, namely, 2 to 3 lbs. to 5 gallons of water. With such lime as is here referred to, one could rest assured that 1 lb. to 5 gallons (50 lbs.) would be ample, and that the resulting lime-water would be thoroughly saturated. The method of preparation is simply to slake the lime with a small quantity of water and then stir the milk of lime so formed into 5 gallons of

water. After this mixture has been well stirred for a few hours it is allowed to settle. The supernatant liquid, which is now "saturated" lime-water, is drawn off and poured over the eggs, previously placed in a crock or water-tight barrel.

As exposure to the air tends to precipitate the lime (as carbonate), and thus to weaken the solution, the vessel containing the eggs should be kept covered. The air may be excluded by a covering of sweet oil, or by sacking upon which a paste of lime is spread. If after a time there is any noticeable precipitation of the lime, the lime-water should be drawn or siphoned off and replaced with a further quantity newly prepared.

GENERAL PRECAUTIONS NECESSARY TO TAKE.

It is essential that attention be paid to the following points:

1.—That only perfectly fresh eggs be used. No eggs more than four days old should be used.

2.—That the eggs throughout the whole period of preservation should be completely immersed.

Although not necessary to the preservation of the eggs in a sound condition, a temperature of 40° F. will no doubt materially assist towards retaining good flavor, or rather in arresting that "stale" flavor so often characteristic of packed eggs.

Respecting the addition of salt, it must be stated that our experiments—conducted now throughout five seasons—do not show any benefit to be derived therefrom; indeed, salt frequently imparts a limy flavor to the eggs, probably by inducing an interchange of the fluids within and without the egg. Our advice is, do not add any salt to the lime-water.

WATER-GLASS AS A PRESERVATIVE.

Water-glass (sodium silicate) has been extensively experimented with, using solutions varying from two to ten per cent. On the whole, solutions 2 to 5 per cent (two pounds to five pounds sodium silicate in ten gallons of water) have given better results than stronger solutions. Although in the main the results have been very fairly satisfactory, we are of the opinion that lime-water is superior as a preservative. Further, lime-water is cheaper and pleasanter to use than water-glass solution.

It may be of interest to those who are making up solutions for the preservation of eggs, to know that any solution containing a preservative the use of which is prohibited by the California Pure Food Act of March 11, 1907, will not be allowed.

TYPHOID FEVER AND DRINKING WATER.

It is probably a safe estimate to say that if a thorough investigation were made into the source of water infection in communities in which typhoid fever is abnormally prevalent, two thirds of the cases would trace back to feces-polluted drinking water.

As regards the average run of private wells, it may with equal truth be said that the quality of these could hardly be worse. It is obviously out of the question to make frequent analyses of even a small proportion of such wells. No one who is compelled to slake his thirst from such

a well can have any real assurance that he is not at the same time taking into his stomach the germ of typhoid fever. But the risk does not end here. People must use milk as well as water, and very frequently the unsuspecting use them in combination, as when the thrifty dairyman dilutes his too thick milk with a little well water. Even where the dairyman scorns such tricks, he probably uses well water to wash his cans and utensils, and in this manner he may unwittingly convey to his customers the disease-producing typhoid germ.

Even when the typhoid germ is absent, feces-polluted water is generally injurious to health. It may and does contain germs which in the human body can give origin to inflammation, catarrhs and dysenteries.

It is fortunate for the health of rural communities that the source of drinking water is most often a natural spring rather than a dug well. When situated above one hundred yards from the house and barn, country springs are rarely or never polluted. On the other hand, it is almost invariably the case that the average farmyard well is polluted by fecal bacteria. The same condemnation must be visited upon town wells. The typical backyard well is a shallow pit, from fifteen to thirty feet deep. Usually there is no casing and the only protection from surface contamination is a more or less rickety platform, or, as is often the case, merely a square box or top.

In towns, while the wells may be of better construction, the chances are that the soil is more thoroughly permeated with filth. The privies are of necessity close to the wells, and the liability to pollution is proportionately great.

One of the most unfortunate consequences of the private ownership of public water supplies is that all but the well-to-do citizens consider themselves unable to afford the cost of the safe-guarded supply. Thus a town may have a very pure and excellent water supply, and yet the majority of the citizens will continue to drink from sewage-polluted wells.

So absolutely necessary is pure water, and an abundance of it, to the public health, that municipalities should see that citizens are supplied with pure water even before they are supplied with electric lights, macadamized streets, and similar modern conveniences.

Every town of one hundred or more families should secure a public water supply.

When a town has once installed a public water supply of good quality, and the water is offered to consumers at the lowest possible price, all private wells within the region traversed by the public water mains should be condemned and closed up as menaces to the public health.—*Iowa Health Bulletin.*

CALIFORNIA STATE BOARD OF HEALTH.

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STATE FOOD AND DRUG LABORATORY.

M. E. JAFFA, M.S., *Director* ..... University of California, Berkeley

CALIFORNIA PUBLIC HEALTH ASSOCIATION.

The annual meeting of the California Public Health Association was held at Hotel del Coronado at 10:30 A. M., April 20, 1908.

The minutes of the last meeting were read and approved.

President Osborne announced that the afternoon session would be held in San Diego, in order that Dr. Blue's address might be heard by the people of that city.

Prof. M. E. Jaffa was introduced, and briefly reviewed the work done thus far by the Laboratory, and the work of Dr. Wiley with preservatives. The idea of the State Board is to educate, as well as prosecute. No subject has provoked so much discussion as preservatives. The Professor explained the methods adopted by Dr. Wiley, and answered some of the criticisms of them and the results. While by no means entirely perfect, the conclusions arrived at were, as a rule, sound and of immense benefit to mankind.

Dr. Wiley concludes that large doses of preservatives for a short time, or small ones for a long time, are deleterious. That one half gram a day is deleterious. Salicylic acid has the least injurious effect. Sulphurous acid the most. Boracic between.

The great objection to preservatives is that the kidneys are called upon to eliminate the drug, and too much work is demanded of them. The conclusion must be reached that any preservatives that are unnecessary must be deleterious, and should not be allowed.

The use of sulphur in fruit is necessary to prevent it from spoiling, but not in the amount generally used. The beautiful golden color

can be secured by it, but the fruit is not as good, and the use of sulphur will have to be limited.

There was a general discussion of this subject, and many questions asked especially relating to the enforcement of the Pure Food Law.

At 11:45 A. M. the President announced that the subject of Epidemiology, which was to be opened by Dr. Snow, would not be taken up, Dr. Snow not being present.

Dr. Foster was called to explain the charts and reports which were on the table.

Dr. A. R. Ward of the State Hygienic Laboratory explained the workings of the Bacteriological Laboratory in suppressing diphtheria, and urged that it be made of more general use by Health Officers.

A general discussion was indulged in as to the spread and control of disease, and many valuable and practical suggestions made.

At 12:30 the meeting adjourned to meet at 4:30 P. M. in San Diego.

Drs. Blue and Rucker, of the United States Public Health and Marine Hospital Service, addressed a large and interested audience on the subject of Sanitation and Dissemination and Eradication of Plague.

The evening meeting was called to order by Dr. Osborne at 9 P. M.

The following resolution was introduced by Dr. Wm. Simpson of San José, and adopted:

WHEREAS there have been introduced into Congress two bills (H. R. 18792, H. R. 18794) of the utmost importance to the public health of the entire United States; and

WHEREAS we believe that the passage of these measures is essential to the uniform control and eradication of epidemic diseases in the United States; and

WHEREAS the enactment of these laws will work no hardship on any person nor abridge any State right; therefore, be it

Resolved, That we, the California Public Health Association, urge upon the California delegation in Congress the immediate passage of these laws.

Dr. E. N. Ewer of Oakland was elected President and Prof. M. E. Jaffa Vice-President.

Dr. Regensburger moved that the October meeting be held in Oakland. Carried.

There being nothing further to come before the meeting, it was adjourned.

The attendance of Health Officers at these meetings is not anything near what their importance warrants us to expect. They are conducted without expense to them, and give a chance for an immense amount of good. Subjects of mutual interest are discussed, and the acquaintances and friendships formed are of the utmost advantage in our work.

The Health Officers of the State are not held in the high respect that their work warrants, and the reason is not hard to find. It lies largely in the lack of harmony and unity of purpose in our efforts to suppress disease and improve sanitary conditions.

Hygiene and sanitation have become a science, and can no longer be conducted successfully by any one whose only qualification is a willingness to accept the position of Health Officer for the small amount of pay, which is oftentimes a mere pittance.

No municipality can afford to have such an officer, for paying little they get little in return. This class of officers never grace the meetings of the State Health Officers' Association. They are conspicuous by *their absence.*

Oftentimes even the best Health Officers do not attend, for the simple reason that they can not afford to lose time, practice, and money, nor is it right that the municipality, which will receive the benefit, should expect this sacrifice on the part of the Health Officer. It should pay the expense of the trip and insist that he attend. It should be part of his duty.

All associated effort depends for its success upon organization. Perfect team work offsets many weaknesses in the individual units, and if all the Health Officers of the State would attend the meetings, our Association would develop a strength that could demand a more perfect code of laws and power to execute them.

We can not expect the respect and confidence of the public until we merit it by our works, and show a high respect for ourselves and each other.

There are many subjects on which Health Officers may rightly hold different opinions, but these should be thrashed out in our own meetings and some common ground of action adopted, else the public will charge that we are incompetent and do not understand our work.

We can not urge too strongly that all Health Officers attend the State and local Health Officers' meetings, and to hope that the next Legislature will pass a law requiring each county and municipality to send at its own expense a representative of its health department to these meetings.

The Association will hold its October session in Oakland, where all are earnestly invited to attend.

PURE FOOD MEETING OF THE STATE BOARD OF HEALTH.

On May 15th and 16th the Board held its first hearings of charges preferred under the Pure Food Law of March 11, 1907. Sixty-seven persons and firms were cited to appear and show why the findings of the Director of the State Laboratory, that they had sold adulterated or mislabeled food stuffs, should not be sustained.

Approximately one half of those cited appeared, or were represented at the hearings. The others made default. After hearing the evidence, the Board sustained the findings of the Director of the State Laboratory in all but three or four of the cases, which were continued to permit the introduction of further evidence.

The cases before the Board at this time were confined almost exclusively to the manufacturers of "soft drinks" and vinegars. It has been determined that where an article of food or drink is artificially colored, that fact must be stated on the label, in order that the purchaser may not be deceived as to the contents of the package. This determination was made by the Federal authorities long before our law went into effect, and as our law is almost identical with the Federal law, it was supposed that manufacturers would take notice and act accordingly. Nearly all of them were found to be offenders in this regard, however.

It has also been found that only certain specified brands of coal tar or aniline dyes may be used to color a food or drink without injury to the consumers. This fact, and the names of the permitted dyes, were given wide publicity nearly a year ago. Nevertheless, it was found that almost all drinks examined were colored by the use of aniline dyes,

and no manufacturer who appeared was able to submit satisfactory proof that the permitted dyes had been used.

In the case of vinegars the offenses consisted largely of mislabeling. In numerous instances it was found that cheap spirit or distilled vinegars were labeled "Malt" or "Cider," the latter being regarded as higher grade and better selling vinegars.

It may be said, however, that in the case of every person or firm represented, a desire to comply with the law was forcibly expressed, and faithful promises were made by all to do so henceforth. It seemed to be the unanimous opinion of all that the law is a good one, and that its enforcement will result in great benefit, not only to the consumers, but also to all manufacturers who desire to place on the market legitimate goods under truthful labels.

In many instances the offense appeared to have been committed more through ignorance than design, and especially strong pleas were made upon the part of such persons. The law, however, invests the Board with no discretion. If the analysis made by the Director of the State Laboratory is found to be incorrect, the case must be dismissed. If his analysis is sustained, the matter *must* be referred to the district attorney of the proper county for prosecution. The Board is determined to follow the mandate of the law in this as well as in all other respects, and such a course, while it may work apparent hardships in individual cases, will assure every one of exactly the same treatment.

In view of the fact that when a sample has been taken it must take its regular course, and if found to be misbranded or adulterated, the matter must be referred to the district attorney for prosecution, and in view of the further fact that as soon as a complaint is filed by the district attorney, the matter becomes one of public record, it is extremely important to every dealer and manufacturer that he make, or have his attorney make, a study of the act, and at once take vigorous measures to comply with it.

It is feared that too many manufacturers and dealers have regarded this law as one passed in response to a public demand and then intended to be allowed to become a dead letter. Such is not the case. Approximately sixty criminal prosecutions will be instituted under this law during the present week. As many more will begin during the month of June, and unless there is marked improvement in the grade of samples received, the monthly output of complaints will be greater thereafter.

By reason of a small appropriation, the Board is limited in its capacity to carry on inspection, and for the same reason the laboratory is not able to accomplish the analysis of so great a quantity of samples as would be necessary if the whole State were covered at once; but with such means as it has, the Board is determined actively to prosecute the work to the end that adulteration and mislabeling of foods and drugs shall be unknown.

The manufacturer or dealer who really makes an effort to obey the law will find no particular difficulty in doing so. Reduced to its lowest terms, the provisions of the act amount only to this: foods and drugs must be pure, and the labels placed on them must speak the truth. Certainly there is nothing unreasonable in these requirements; *and certainly* the people, consumers, and others, are entitled to have *these requirements* enforced without fear or favor.

DEPARTMENT OF VITAL STATISTICS.

GEORGE D. LESLIE, STATISTICIAN.

VITAL STATISTICS FOR APRIL.

Births.—The living births registered in April number 2,110, as compared with 2,135 for March. For an estimated State population of 2,019,519 the April total represents an annual birth-rate of 12.7 against 12.5 for March.

The April totals were highest for the following counties: Los Angeles, 478; San Francisco, 363; Alameda, 299; Santa Clara, 114; Fresno, 84; San Bernardino, 62; San Joaquin, 53; and San Diego, 50.

The births registered in the leading freeholders' charter cities for April were as follows: San Francisco, 363; Los Angeles, 333; Oakland, 179; Berkeley and Fresno, each 46; San José, 36; Alameda and Sacramento, each 35; Stockton, 33; San Diego, 30; and Pasadena, 27.

Marriages.—The marriages reported for April number 1,618 against 1,470 for March, and represent an annual rate of 9.8, as compared with 8.6 for the preceding month.

The April totals were greatest for the following counties: Los Angeles, 331; San Francisco, 294; Alameda, 190; Sacramento, 68; Santa Clara, 66; Fresno, 58; Orange, 57; and Marin, 53.

Deaths.—Altogether 2,525 deaths, exclusive of stillbirths, were reported for April against 2,866 for March. The annual death-rate for April is 15.3, as compared with 16.8 for March.

The April death totals were highest for the following counties: Los Angeles, 507; San Francisco, 482; Alameda, 303; Santa Clara, 93; Sacramento, 79; San Bernardino, 75; San Joaquin, 66; San Diego, 57; Napa and Sonoma, each 56; and Fresno, 55.

Deaths for April were reported as follows for the leading cities: San Francisco, 482; Los Angeles, 305; Oakland, 164; Sacramento, 55; San Diego, 47; Alameda, 46; Berkeley, 45; San José, 36; Stockton, 34; Fresno, 31; and Pasadena, 27.

Causes of Death.—In April there were altogether 423 deaths, or 16.8 per cent of all, from tuberculosis, and 364, or 14.4 per cent, from diseases of the circulatory system.

Other notable causes of death in April were diseases of the respiratory and nervous systems, violence, diseases of the digestive system, Bright's disease, cancer, and epidemic diseases.

The leading epidemic diseases in April were diphtheria and croup, 33; typhoid fever, 28; whooping-cough, 16; scarlet fever, 15; measles, 9; and all others, 21.

Further details appear in the following table, which gives the number of deaths from certain principal causes reported for April, as well as the proportions from each cause per 1,000 total deaths for both April and March.

Cause of Death.	Deaths: April.	Proportion per 1,000.	
		April.	March.
ALL CAUSES	2,525	1,000.0	1,000.0
Typhoid fever	28	11.1	12.2
Malarial fever	3	1.2	1.7
Smallpox	2	0.8	0.3
Measles	9	3.6	5.9
Scarlet fever	15	5.9	1.7
Whooping-cough	16	6.3	4.5
Diphtheria and croup	33	13.1	13.6
Influenza	7	2.8	9.4
Other epidemic diseases	9	3.6	3.5
Tuberculosis of lungs	368	145.7	134.0
Tuberculosis of other organs	55	21.8	27.6
Cancer	155	61.4	49.9
Other general diseases	101	40.0	39.8
Meningitis	62	24.5	22.7
Other diseases of nervous system	206	81.6	69.4
Diseases of circulatory system	364	144.1	154.2
Pneumonia and broncho-pneumonia	213	84.4	99.8
Other diseases of respiratory system	64	25.4	27.9
Diarrhea and enteritis, under 2 years	40	15.8	14.7
Diarrhea and enteritis, 2 years and over	14	5.5	5.6
Other diseases of digestive system	116	45.9	45.7
Bright's disease and nephritis	163	64.6	60.4
Childbirth	36	14.3	12.2
Diseases of early infancy	78	30.9	26.9
Suicide	67	26.5	24.8
Other violence	161	63.8	71.9
All other causes	140	55.4	59.7

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases reported for April for the several geographic divisions of the State, including the metropolitan area, or "Greater San Francisco," in contrast with the rural counties north of Tehachapi:

Geographic Division.	Deaths: April.									
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Violence	All Other Causes
THE STATE	2,525	122	423	155	268	364	277	170	228	518
Northern California	369	17	40	15	57	57	57	19	29	78
Coast counties	171	5	18	10	33	30	18	12	11	34
Interior counties	198	12	22	5	24	27	39	7	18	44
Central California	1,398	77	208	103	125	215	147	105	138	280
San Francisco	482	21	68	39	34	78	55	41	49	97
Other bay counties	353	20	50	30	29	63	44	21	28	68
Coast counties	181	16	23	10	25	26	11	10	20	40
Interior counties	382	20	67	24	37	48	37	33	41	75
Southern California	758	28	175	37	86	92	73	46	61	160
Los Angeles	507	21	116	26	58	61	45	32	39	109
Other counties	251	7	59	11	28	31	28	14	22	51
Northern and Central California	1,767	94	248	118	182	272	204	124	167	358
Metropolitan area	835	41	118	69	63	141	99	62	77	165
Rural counties	932	53	130	49	119	131	105	62	90	193

DEPARTMENT OF BACTERIOLOGY.

DR. A. R. WARD, DIRECTOR.

THE CONTROL OF DIPHTHERIA.

The American Journal of Public Hygiene for November, 1907, contains an interesting article by Dr. H. W. Hill on "Time Limit versus Culture Limit in Diphtheria Release." Lack of space prevents reprinting the paper here, but his concluding paragraph presents the gist of the whole:

> But wherever the truth may lie as regards the handling of convalescents from diphtheria, the fact seems to be that whether handled by time limit or by culture limit, rather less than two per cent of new cases are accounted for by failures in either method. Since diphtheria morbidity is not on the decrease, although its fatality is, every case of diphtheria now existing must give rise on the average to one new case. The settling of the question as to convalescents, however interesting, will necessarily leave 98 per cent of the reproduction of diphtheria unaccounted for. It would seem much more important to search for the methods to control the, as yet, evidently uncontrolled source of this 98 per cent than to devote all attention to search for those errors in handling convalescents which result in the reproduction of at most two per cent. If we may tentatively accept the teaching that diphtheria is chiefly reproduced by early, unrecognized and concealed cases, the ultimate control of diphtheria to the point possibly of abolition becomes a matter of early diagnosis—which involves culture taking from *all* sore throats, with isolation until the report is received—or the prompt immunization of *all* sore throat cases, together with the immunization of all potential receivers—*or* a judicious combination of both methods, "a word and a blow—the blow first," *i. e.*, give antitoxin first and inquire about it (by means of a culture) afterwards.

The work in the control of diphtheria in schools in California and elsewhere goes a step farther than Dr. Hill has recommended to the general practitioner. It involves a search, by culture, for the mild and unrecognized cases among school children.

DEPARTMENT OF PURE FOODS AND DRUGS.

PROF. M. E. JAFFA, DIRECTOR.

FOOD AND DRUG INSPECTION.

It was the aim of Congress, by the passage of the National Pure Food Act of June 30, 1906, to insure to the consumer foods and food products honestly labeled and free from adulteration; and to the honest manufacturer, protection from undesirable competition of those who, in various ways, were sophisticating their products.

In order to best attain these ends, it is absolutely essential that there shall be active and efficient coöperation between the State and the Federal laboratories. The national law deals only with imported foods, or with foods and food products manufactured in one State and sold in another; it can not exercise any supervision with reference to foods and food products manufactured, and sold only in the same State, hence the *necessity* for the State law, and the establishment of the *State Laboratory.*

Naturally, it is not possible, during the first few months of the Laboratory's existence, to correct all the evil influences arising from food and drug adulteration. The seemingly most important infringements are first taken up, and it appears to those in charge of the work that one of the most imperative needs is to remedy the evils of the adulteration of meats and meat products. This is not only important for the protection of the consumer, but it is of vital interest to the honest manufacturer, and particularly to those who are interested in meats and meat food products intended for interstate commerce. These people are under Federal inspection, and without the coöperation of the State would be forced to submit to competition of those within the State who are not under such inspection, because the latter do not send their goods outside of the State.

Notice is therefore given to all dealers and manufacturers, and those concerned in the manufacture or sale, of meats and meat food products in California, except those to whom the Federal meat inspection law applies, that, in accordance with Section 3 of the California law, reading: "The standard of purity of food and liquor shall be that proclaimed by the Secretary of the United States Department of Agriculture"; the State Board of Health will coöperate with the Federal authorities to the extent of collecting and analyzing samples of meats, and meat food products manufactured in this State. Any infringements of the Federal law with respect to the use of preservatives or coloring matter will be considered as violations of the California law.

For the guidance of those interested, the following excerpts from the Federal law may be of interest:

A meat food product, within the meaning of the meat-inspection act and of these regulations, is considered to be any article of food intended for human use which is derived or prepared in whole or in part from any edible portion of the carcass of cattle, sheep, swine, or goats, if the said edible portion so used is a considerable and definite portion of the finished food.

No meat or meat-food shall contain any substance which lessens its wholesomeness, or any drug, chemical, harmful dye, or preservative, other than the preservatives, common salt, sugar, wood smoke, vinegar, pure spices, and, pending further inquiry, saltpeter.

Regulation 39 provides that no dye, unless authorized by the Federal statute, shall be used in any meat food product until the use of such dye has been specifically authorized by the Secretary of Agriculture. It has been decided to allow the use of certain dyes on sausage and other casings when the character of the casings is such that the dye will not penetrate into the meat food product contained in the casing. Cloth casings which it is desired to color with these dyes shall first be dipped in uncolored paraffin. Permission has been granted for the use of annatto for this purpose. In addition, the dyes permitted under the Food and Drugs Act of June 30, 1906, as enumerated in Food Inspection Decision 76, may be used for dyeing casings but for no other purpose. These dyes are as follows:

Red shades:	107. Amaranth.
	56. Ponceau 3 R.
	517. Erythrosin.
Orange shades:	85. Orange 1.
Yellow shades:	4. Naphthol yellow S.
Green shades:	435. Light green S. F. yellowish.
Blue shades:	692. Indigo disulfo acid.

The numbers preceding the names refer to the number of the dye *in question* as listed in A. G. Green's edition of the Schultz-Julius *Systematic Survey* of the Organic Coloring Matters, published in 1904.

False or deceptive names.—No picture, design, or device which gives any false indication of origin or quality shall be used upon any label. Any statement, design, or device regarding the virtues or properties of the materials contained in the package that is false in any particular is prohibited by law; for example, the picture of a pig appearing on a label which is placed upon beef product; the picture of a chicken appearing upon a label placed upon a product composed of veal or pork; the picture of a leaf or leaves appearing in connection with the word "Lard" is considered deceptive, except that when used on packages containing leaf lard it may appear separately from the word "Lard" as a brand; *e. g.*, "Maple Leaf Brand." Such words as "Special," "Superior," "Fancy," "Selected," etc., placed upon products which are more inferior than implied by the term used are false and deceptive.

Geographical names.—Geographical names may be used only with the words "Cut," "Type," "Brand," or "Style," as the case may be, except upon foods produced or manufactured in the place, State, Territory, or country named; for example, "Virginia Ham," not produced in Virginia, must be marked "Virginia Style Ham"; "English Brawn" must be "English Style Brawn"; "English Sausage" should be "English Style Sausage"; "Bologna Sausage" should be "Bologna Style Sausage"; "Frankfurter Sausage" should be "Frankfurter Style Sausage"; "Cumberland Middles" should be "Cumberland Cut Middles"; "Winchester Sausage" or "Winchester Ham," should be "Winchester Brand Sausage" or "Winchester Brand Ham," etc.

Names of breeds of live stock and names of persons.—Names indicative or imitative of distinctive types or breeds of live stock can not be used unless the product is actually made of the meat from animals of those breeds; for example, "Berkshire Pork" can not be used unless the product is from the Berkshire breed of hogs.

Names of persons, when used as brands or applied to cuts, will not be considered deceptive.

Products prepared for another establishment.—When an article is prepared by an establishment for another firm or individual, if the name of the said firm or individual is to appear upon the label, the statement must be made that the article was "prepared for" or "manufactured for" the firm or individual. Names of the subsidiary companies which have legal entity may be used without the prefix "prepared for" or "manufactured for"; and such subsidiary companies must make application for inspection under the establishment number of the parent organization. The name of a firm or individual may appear as the distributor of the product.

Hams.—The word "Ham," without a prefix indicating the species of the animal, is considered to be a pork ham. Trimmings removed from the ham and used in the preparation of potted or prepared meats or sausage, or when used alone, may be known as "Potted Ham" or "Ham Sausage." The word "Ham" can not be used on any prepared ham product without some word clearly and truthfully indicating the method of preparation; thus, "Potted Ham," "Deviled Ham," "Minced Ham," "Ham Sausage."

Tongue.—No species of animal need be indicated; but if the species is specified, the statement must be true. In connection with the preparation of tongue products, the ruling will be the same as those in connection with the preparation of ham products; for example, "Potted Tongue" must be made of tongue or tongue trimmings.

Mixtures and compound.—Mixtures, when the name plainly indicates a mixture, such as "Sausage," "Hash," "Minced," etc., need not be marked. "*Compounds*"—other mixtures not so indicated by their names must be marked "Compound." In the case of compounds containing lard, stearin, or other fats, or cottonseed oil, and in compounds containing stearin and cottonseed oil, the names of the ingredients must appear upon the label. If the compound has a distinctive name, such as "White Cloud," "Cottolene," "Cottosuet," etc., the word "compound" need not appear, but the ingredients must be stated upon the label. When the word "compound" is used, it can not be qualified by any adjective either before or after, nor can the name of any product be attached to the word "compound" unless that product is the principal ingredient of the compound.

Unless mincemeat, or pork and beans, or soups contain a considerable proportion of meat, they will not be considered meat food products.

Sausages and chopped meats.—The word "sausage," without a prefix indicating the species of animal, is considered to be a mixture of minced or chopped meats, with or without spices. If any species of animal is indicated, as "Pork sausage," the sausage must be wholly made from the meat of that specie. If any flour or other cereal is used, the label must so state. If any other meat product is added, the label must so state; for example, "Pork and Beef Sausage"; "Pork, Beef, and Flour" (or other cereal); or "Pork and Beef Sausage, cereal added."

Meat loaves, without a prefix indicating any particular kind of meat, are held to be mixtures of meats, flour (or other cereal), milk, eggs, butter, or other ordinary loaf ingredient. If any particular kind of meat is indicated, that kind must be the only meat used; for example, "Veal Loaf" must be made from veal and loaf ingredients only. If any other meat is used, the label must so state; for example, "Veal and Pork Loaf"; "Veal, Beef, and Pork Loaf"; the word "Paté" is synonymous with the word "Loaf."

Flour or other cereals may be used in the preparation of loaves, gravies, or soups, without being stated on the label.

Canned products.—If flour or other cereal is used in any canned product which is not labeled "Loaf," "Paté," or "Soup," or which is not prepared with gravy, the label must clearly show the presence of the flour or other cereal.

IN THE USE OF COLORING MATTERS IN SOFT DRINKS.

Many requests for information as to the use of coloring matters and the proper labeling of colored products have been received. In the majority of cases the inquiries indicate that the questioners have not carefully read the act of March 11, 1907, or the regulations adopted by this Board in January, 1908. All persons interested are earnestly requested to make a careful study of the act and of the regulations.

These regulations have not the force of law, but they indicate the views of the Board as to the proper construction of the act, and will answer many questions sent to the Secretary or the Director of the Laboratory.

It may be well, however, in more detail to set forth the views of the Board as to the use of dyes in and the proper labeling of soft drinks.

1. *As to the use of coal tar dyes.*

The use of any dye, harmless or otherwise, to color or stain a food in any manner whereby damage or inferiority is concealed, or whereby the purchaser is deceived or misled, is specifically prohibited by law. The use in food, for any purpose, of any mineral dye or any coal tar dye, except those coal tar dyes hereinafter listed, will be grounds for prosecution. Pending further investigations now under way and the announcement thereof, the coal tar dyes hereinafter named, made specifically for use in foods and which bear a guaranty from the manufacturer that they are, and which are, as a matter of fact, free from subsidiary products and represent the actual substance, the name of which they bear, may be used in foods.

The coal tar dyes which may be used in this manner are given numbers, the numbers preceding the names referring to the number of the dye in question as listed in A. G. Green's edition of the Schultz-Julius Systematic Survey of the Organic Coloring Matters, published in 1904. The list is as follows:

Red shades:	107. Amaranth.
	56. Ponceau 3 R.
	517. Erythrosin.
Orange shade:	85. Orange I.
Yellow shade.	4. Naphthol yellow S.
Green shade:	435. Light green S. F. yellowish.
Blue shade:.	692. Indigo disulfo acid.

Each of these colors shall be free from any coloring matter other than the one specified and shall not contain any contamination due to imperfect or incomplete manufacture.

The use of coal tar dyes, as hereinabove permitted, is allowed at this time and temporarily only, for the reason that it appears that dyes tested, certified, and guaranteed, as required by Food Inspection Decision 77, issued by the Secretary of the United States Department of Agriculture, are not to be had in the market at the present time, and this ruling will be in effect only until the Board determines that dyes tested, certified and guaranteed, as required by Food Inspection Decision 77, can be had in the market.

In all cases, persons using coal tar dyes will be required to establish the fact that the dyes used are such as are permitted in this ruling, and until that fact is established, the use of any coal tar dye will be deemed to be in violation of the California Pure Foods Act, March 11, 1907.

Persons or firms using coal tar or aniline dyes should insist that those from whom they purchase coloring matter furnish them very satisfactory proof that the dyes purchased conform to the above requirements.

2. *As to the labeling of colored drinks.*

Whenever such drinks have been artificially colored or flavored, the fact should be stated on the principal label. Otherwise artificial coloring or flavoring will be regarded as a violation of Sections 4 and 6 of the act.

The use of the term "Artificial" alone is not regarded as sufficient

in such cases. The words "Artificially Colored," or "Artificially Flavored," or "Artificially Colored and Flavored," as the case may be, should be used. For example, a soda water artificially colored and flavored to represent a product of the strawberry, may be labeled "Strawberry Soda, Artifically colored and flavored." Or, if really flavored by the used of that fruit, and artificially colored, it may be labeled "Strawberry Soda, artificially colored." This rule obtains whether the coloring matter used be aniline dye or not.

In the case of soda water labels printed and on hand May 20, 1908, and reading substantially as follows: "Artificial Strawberry," the same may be used on artificially colored and flavored water; but the burden will be upon the persons using the same to prove that they were printed and on hand May 20, 1908.

It should be remembered in this connection that the absence of any label will not justify the sale of any article under a false or misleading name.

Pending further investigations and until further notice in this Bulletin, the use of saccharin, as a sweetener, in soda waters, will be permitted, providing it is so stated upon the label; but the quantity used shall be in no greater proportion than one sixth of one grain to eight ounces of the beverage.

WARNING TO FRUIT GROWERS, PACKERS, SHIPPERS, AND DEALERS.

Examples of mislabeling and misbranding of fruit have been brought to the notice of the State Laboratory. For instance, a box is labeled "Extra Fancy Black Tartarian Cherries." The contents of a box so labeled should consist entirely of Black Tartarian cherries, as far as possible; but a box so labeled and containing but one layer of Black Tartarian cherries, the rest of the contents consisting of extremely small red cherries, is in direct violation of the California Pure Foods and Drug Law, particularly of Section 6, Subdivision 2, which reads:

> Food and liquor shall be deemed mislabeled or misbranded within the meaning of this act in any of the following cases:
>
> * * * * * * * * * *
>
> If it be labeled or branded or colored so as to deceive or mislead, or tend to deceive or mislead the purchaser, or if it be falsely labeled in any respect, or if it purport to be a foreign product tend to mislead the purchaser, or purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package.

The above statements with reference to cherries are used merely as an illustration; the principle involved applies to all fruits. In other words, the package must be honestly labeled. This warning is published for the guidance of those interested, because any violations in this respect will have to be dealt with according to the law.

CALIFORNIA STATE BOARD OF HEALTH.

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NOTICE TO COUNTY RECORDERS AND CITY HEALTH OFFICERS.

Registration of Births.—The attention of County Recorders and City Health Officers is directed to the statistics on Increase of Births in this month's Bulletin. If the decreases or small increases shown for some counties and cities are due to incomplete registration, the Recorders and Health Officers concerned must exert themselves to compel physicians and midwives to properly register all births attended by them.

If physicians are without enough local pride to register all the births they attend, in order to make a good statistical showing for their respective communities, then the County Recorders and City Health Officers in charge of birth registrations should warn these physicians that they must obey the State law by promptly registering all births, or else suffer prosecution for misdemeanor.

DEPARTMENT OF VITAL STATISTICS.

GEORGE D. LESLIE, STATISTICIAN.

INCREASE OF BIRTHS: 1906 TO 1907.

Summary.—The births registered in California numbered 24,674 for 1907, against 20,974 for 1906, an increase of 3,700, or 17.6 per cent, partly due to improved registration.

The per cent of increase was 18.6 for the counties north of Tehachapi, as compared with 15.6 for those to the south.

For the metropolitan area, comprising San Francisco and the other bay counties, the rate of gain was as great as 34.0, and for Los Angeles County it was 21.9, the per cents of increase being much less for other groups of counties.

Of the individual counties, thirty-four showed increases in births, two no change, and twenty-one showed decreases.

The increases were above the State average, 17.6 per cent, in the following twenty counties: Humboldt, Mariposa, Mono, Sutter, Contra Costa, Ventura, Colusa, Inyo, Lake, Trinity, Alameda, Shasta, San Mateo, San Francisco, Tehama, Monterey, Los Angeles, Merced, Lassen, and Marin.

The rate of gain was 18.4 for the nineteen freeholders' charter cities and 16.5 for all the rest of the State.

The cities showing increases in births were as follows, in descending order: San Bernardino, Berkeley, San Francisco, Pasadena, San Diego, Santa Cruz, Sacramento, Oakland, Stockton, Salinas, Los Angeles, Santa Rosa, Napa, and Fresno.

Comparison of the ranking of the leading counties in births registered shows gains for the following counties: Sacramento, Riverside, Santa Cruz, Tulare, Monterey, Contra Costa, San Mateo, San Luis Obispo, Mendocino, Shasta, Ventura, and Humboldt.

In the comparative ranking of cities there were also rises in rank for Berkeley, Sacramento, Pasadena, San Bernardino, Santa Cruz, Watsonville, and Napa.

Altogether 60.3 per cent of the births registered in California in 1906 were in nineteen freeholders' charter cities, and 64.0 per cent of the State total for 1907 were in the twenty-four cities of this class reporting births that year.

Geographic Divisions.—Exclusive of stillbirths, altogether 24,674 births were registered in 1907 and 20,974 in 1906, under the law of 1905 requiring physicians to file certificates with County Recorders and City Health Officers for transmittal to the State Bureau of Vital Statistics. The increase of births for 1907 over 1906 was 3,700, or 17.6 per cent, part of the gain being due to more complete registration.

The births registered in the counties north of Tehachapi totaled 16,752 for 1907, against 14,121 for 1906, a gain of 2,631, or 18.6 per cent. The totals for Southern California were 7,922 in 1907 and 6,853 in 1906, an increase of 1,069, or 15.6 per cent.

The per cent of increase was no less than 30.7 for San Francisco and 38.4 for the other bay counties, or 34.0 for the metropolitan area, against 4.5 for the rural counties north of Tehachapi. Similarly, the rate of gain was 21.9 for Los Angeles, but only 1.2 for the other counties of Southern California.

Further details appear in the table below giving the number and per cent of increase in births for the several geographic divisions of the State, in 1906 to 1907:

Increase of Births, for Geographic Divisions: 1906 to 1907.

Geographic Division.	Births.		Increase.	
	1907.	1906.	Number.	Per cent.
THE STATE	24,674	20,974	3,700	17.6
Northern California	2,405	2,232	173	7.8
Coast counties	953	824	129	15.7
Interior counties	1,452	1,408	44	3.1
Central California	14,347	11,889	2,458	20.9
San Francisco	5,128	3,923	1,205	30.7
Other bay counties	3,944	2,849	1,095	38.4
Coast counties	1,924	1,831	93	5.1
Interior counties	3,351	3,286	65	2.0
Southern California	7,922	6,853	1,069	15.6
Los Angeles	5,823	4,778	1,045	21.9
Other counties	2,099	2,075	24	1.2
Northern and Central California	16,752	14,121	2,631	18.6
Coast counties	11,949	9,427	2,522	26.8
Interior counties	4,803	4,694	109	2.3
Metropolitan area	9,072	6,772	2,300	34.0
Rural counties	7,680	7,349	331	4.5

Counties.—The table on the following page gives the increase (or decrease) of births for each county, as well as the per cent of increase for those showing gains in 1907 over 1906.

The apparently high rate of gain shown for Humboldt County is explained by the incompleteness of the returns for 1906, while the high rates for Mariposa and Mono counties are unimportant on account of the very small totals each year.

The per cents of increase were highest for the following counties: Sutter, 80.4; Contra Costa, 61.7; Ventura, 53.8; Colusa, 46.7; Inyo, 45.5; Lake, 44.3; Trinity, 40.0; Alameda, 38.8; Shasta, 33.8; San Mateo, 32.2; San Francisco, 30.7; Tehama, 30.6; Monterey, 25.6; Los Angeles, 21.9; Merced, 21.2; Lassen, 19.4; and Marin, 19.2. Each of these seventeen counties shows a rate of gain above the average rate for the State, 17.6 per cent.

There were also increases in births, but at rates below the State average, in the following fourteen counties, arranged in descending order: Madera, 16.1; San Diego, 15.1; Amador, 14.8; Sacramento, 13.4; Fresno, 9.6; Kings, 8.8; San Bernardino, 8.6; San Luis Obispo, 7.7; Yuba, 4.2; Glenn, 3.7; Santa Clara, 3.5; Napa, 2.2; Sonoma, 1.6; and Solano, 0.4. For Alpine and Calaveras counties exactly the same *number of births* were reported in 1907 as in 1906.

Increase of Births, for Counties: 1906 to 1907.

County.	Births.		Increase.	Decrease.	Per Cent of Increase.
	1907.	1906.			
CALIFORNIA	24,674	20,974	3,700		17.6
Alameda	3,181	2,292	889		38.8
Alpine	6	6			
Amador	62	54	8		14.8
Butte	246	257		11	
Calaveras	95	95			
Colusa	88	60	28		46.7
Contra Costa	291	180	111		61.7
Del Norte	27	30		3	
El Dorado	81	122		41	
Fresno	891	813	78		9.6
Glenn	28	27	1		3.7
Humboldt	139	45	94		208.9
Inyo	16	11	5		45.5
Kern	144	169		25	
Kings	136	125	11		8.8
Lake	101	70	31		44.3
Lassen	43	36	7		19.4
Los Angeles	5,823	4,778	1,045		21.9
Madera	108	93	15		16.1
Marin	242	203	39		19.2
Mariposa	14	6	8		133.3
Mendocino	151	157		6	
Merced	63	52	11		21.2
Modoc	60	70		10	
Mono	2	1	1		100.0
Monterey	270	215	55		25.6
Napa	139	136	3		2.2
Nevada	221	255		34	
Orange	290	343		53	
Placer	65	75		10	
Plumas	31	36		5	
Riverside	333	356		23	
Sacramento	574	506	68		13.4
San Benito	42	50		8	
San Bernardino	553	509	44		8.6
San Diego	480*	417	63		15.1
San Francisco	5,128	3,923	1,205		30.7
San Joaquin	405	408		3	
San Luis Obispo	181	168	13		7.7
San Mateo	230	174	56		32.2
Santa Barbara	300	357		57	
Santa Clara	1,106	1,069	37		3.5
Santa Cruz	325	329		4	
Shasta	210	157	53		33.8
Sierra	29	48		19	
Siskiyou	171	193		22	
Solano	264	263	1		0.4
Sonoma	382	376	6		1.6
Stanislaus	151	165		14	
Sutter	92	51	41		80.4
Tehama	94	72	22		30.6
Trinity	14	10	4		40.0
Tulare	295	313		18	
Tuolumne	3	11		8	
Ventura	143	93	50		53.8
Yolo	41	73		32	
Yuba	74	71	3		4.2

*Includes 6 births in Imperial County, formed August 15, 1907.

According to the registration, there were decreases in births for 1907, as compared with 1906, in the following twenty-one counties arranged alphabetically: Butte, Del Norte, El Dorado, Kern, Mendocino, Modoc, Nevada, Orange, Placer, Plumas, Riverside, San Benito, San Joaquin, Santa Barbara, Santa Cruz, Sierra, Siskiyou, Stanislaus, Tulare, Tuolumne, and Yolo. In some cases the decreases were considerable, indicating the failure of physicians to register births and the neglect of officials to enforce the law.

Cities.—The County Recorder is ex officio local registrar of births, except that in cities having freeholders' charters the Health Officer so acts. Returns are therefore available only for cities with freeholders' charters, and a comparison between 1907 and 1906 must necessarily be limited to the cities reporting births for both years. The table on the following page shows the increase (or decrease) of births in 1906 to 1907 for freeholders' charter cities and for the rural parts of the counties containing them.

In the nineteen freeholders' charter cities reporting births both years, there were 14,985 births in 1907 and 12,654 in 1906, an increase of 2,331 or 18.4 per cent. In all the rest of the State the number of births registered was 9,689 for 1907 and 8,320 for 1906, a gain of 1,369 or 16.5 per cent.

The per cent of increase was 26.7 for the rural parts of the fifteen counties with freeholders' charter cities. The rates of gain range as follows for the rural parts of the counties mentioned: Alameda, 141.3; Los Angeles, 81.3; Monterey, 29.6; Fresno, 17.6; Santa Clara, 6.2; and Solano, 1.8. There were decreases in births, according to the registration, in the rural parts of the following nine counties: Napa, Nevada, Sacramento, San Bernardino, San Diego, San Joaquin, Santa Barbara, Santa Cruz, and Sonoma. In these cases, as in counties without any freeholders' charter cities, the County Recorders are the officials held directly responsible for the enforcement of the law.

The per cents of increase in births were as follows for freeholders' charter cities: San Bernardino, 41.4; Berkeley, 34.2; San Francisco, 30.7; Pasadena, 27.2; San Diego, 26.2; Santa Cruz, 24.7; Sacramento, 23.5; Oakland, 16.8; Stockton, 14.4; Salinas, 13.2; Los Angeles, 11.1; Santa Rosa, 9.5; Napa, 6.8; and Fresno, 0.5. The registration showed decreases in births for the following five cities: Grass Valley, San José, Santa Barbara, Vallejo, and Watsonville. Here the City Health Officers are charged with the duty of enforcing the registration law upon their fellow physicians.

Increase of Births, for Cities: 1906 to 1907.

City.	Births.		Increase.	Decrease.	Per Cent of Increase.
	1907.	1906.			
19 FREEHOLDERS' CHARTER CITIES	14,986	12,654	2,331		18.4
RURAL PARTS OF 15 COUNTIES	5,057	3,992	1,065		26.7
RURAL PART OF STATE	9,689	8,320	1,369		16.5
Alameda County*	847	351	496		141.3
Berkeley town	510	380	130		34.2
Oakland city	1,824	1,561	263		16.8
Fresno County*	507	431	76		17.6
Fresno city	384	382	2		0.5
Los Angeles County*	1,182	652	530		81.3
Los Angeles city	4,201	3,780	421		11.1
Pasadena city	440	346	94		27.2
Monterey County*	210	162	48		29.6
Salinas city	60	53	7		13.2
Napa County*	61	63		2	
Napa city	78	73	5		6.8
Nevada County*	144	146		2	
Grass Valley city	77	109		32	
Sacramento County*	132	148		16	
Sacramento city	442	358	84		23.5
San Bernardino County*	365	376		11	
San Bernardino city	188	133	55		41.4
San Diego County*	148†	154		6	
San Diego city	332	263	69		26.2
San Francisco (City and County)	5,128	3,923	1,205		30.7
San Joaquin County*	174	206		32	
Stockton city	231	202	29		14.4
Santa Barbara County*	171	184		13	
Santa Barbara city	129	173		44	
Santa Clara County*	724	682	42		6.2
San José city	382	387		5	
Santa Cruz County*	57	96		39	
Santa Cruz city	182	146	36		24.7
Watsonville city	86	87		1	
Solano County*	115	113	2		1.8
Vallejo city	149	150		1	
Sonoma County*	220	228		8	
Santa Rosa city	162	148	14		9.5

* Figures are for county exclusive of freeholders' charter city or cities.

†Includes 6 births in Imperial County, formed August 15, 1907.]

County Totals.—The table below shows the counties for which at least 100 births were reported to the State Bureau of Vital Statistics in 1907 and 1906, respectively:

Rank of Counties with at least 100 Births: 1907 and 1906.

1907.			1906.		
Rank.	County.	Births.	Rank.	County.	Births.
	THE STATE	24,674		THE STATE	20,974
1.	Los Angeles	5,823	1.	Los Angeles	4,778
2.	San Francisco	5,128	2.	San Francisco	3,923
3.	Alameda	3,181	3.	Alameda	2,292
4.	Santa Clara	1,106	4.	Santa Clara	1,069
5.	Fresno	891	5.	Fresno	813
6.	Sacramento	574	6.	San Bernardino	509
7.	San Bernardino	553	7.	Sacramento	506
8.	San Diego	*480	8.	San Diego	417
9.	San Joaquin	405	9.	San Joaquin	408
10.	Sonoma	382	10.	Sonoma	376
11.	Riverside	333	11.	Santa Barbara	357
12.	Santa Cruz	325	12.	Riverside	356
13.	Santa Barbara	300	13.	Orange	343
14.	Tulare	295	14.	Santa Cruz	329
15.	Contra Costa	291	15.	Tulare	313
16.	Orange	290	16.	Solano	263
17.	Monterey	270	17.	Butte	257
18.	Solano	264	18.	Nevada	255
19.	Butte	246	19.	Monterey	215
20.	Marin	242	20.	Marin	203
21.	San Mateo	230	21.	Siskiyou	193
22.	Nevada	221	22.	Contra Costa	180
23.	Shasta	210	23.	San Mateo	174
24.	San Luis Obispo	181	24.	Kern	169
25.	Siskiyou	171	25.	San Luis Obispo	168
26.	Mendocino	151	26.	Stanislaus	165
27.	Stanislaus	151	27.	Mendocino	157
28.	Kern	144	28.	Shasta	157
29.	Ventura	143	29.	Napa	136
30.	Humboldt	139	30.	Kings	125
31.	Napa	139	31.	El Dorado	122
32.	Kings	136		Remaining 26 counties	1,246
33.	Madera	108			
34.	Lake	101			
	Remaining 23 counties	1,070			

* Includes 6 births in Imperial County, formed August 15, 1907.

There were thirty-one counties with at least 100 births registered in 1906 and thirty-four in 1907, El Dorado dropping out and Ventura, Humboldt, Madera, and Lake entering the list. Similarly, while there were only twenty counties reporting at least 200 births for 1906, there were twenty-three reporting this number for 1907, the additional counties being Contra Costa, San Mateo, and Shasta. On the other hand, there were fifteen counties reporting 300 births for 1906, but only thirteen for 1907, Orange and Tulare falling below this limit.

Comparison of the ranking of counties in the number of births registered shows gains in certain cases. Thus, Sacramento supplanted San Bernardino in sixth place in the ranking, while Riverside rose from twelfth place to eleventh, Santa Cruz from fourteenth to twelfth, Tulare from fifteenth to fourteenth, and Monterey from nineteenth to seventeenth. Contra Costa County rose from twenty-second place to fifteenth, passing Orange, Solano, Butte, Nevada, Monterey, Marin, and

Siskiyou. San Mateo County rose from twenty-third place to twenty-first, San Luis Obispo from twenty-fifth to twenty-fourth, Mendocino from twenty-seventh to twenty-sixth, and Shasta from twenty-eighth to twenty-third. Ventura and Humboldt counties rose from below thirty-first place to twenty-ninth and thirtieth, respectively.

City Totals.—The following table gives the comparative ranking of the nineteen freeholders' charter cities reporting births for 1907 and 1906, as well as the supplemental ranking of the five additional cities of this class reporting births for 1907 alone (Alameda, Long Beach, Riverside, Eureka, and Santa Monica):

Rank of Cities reporting Births: 1907 and 1906.

1907.			1906.		
Rank.	City.	Births.	Rank.	City.	Births.
	19 FREEHOLDERS' CHARTER CITIES	14,985		19 FREEHOLDERS' CHARTER CITIES	12,654
1.	San Francisco	5,128	1.	San Francisco	3,923
2.	Los Angeles	4,201	2.	Los Angeles	3,780
3.	Oakland	1,824	3.	Oakland	1,561
4.	Berkeley	510	4.	San José	387
5.	Sacramento	442	5.	Fresno	382
6.	Pasadena	440	6.	Berkeley	380
7.	Fresno	384	7.	Sacramento	358
8.	San José	382	8.	Pasadena	346
9.	San Diego	332	9.	San Diego	263
10.	Stockton	231	10.	Stockton	202
11.	San Bernardino	188	11.	Santa Barbara	173
12.	Santa Cruz	182	12.	Vallejo	150
13.	Santa Rosa	162	13.	Santa Rosa	148
14.	Vallejo	149	14.	Santa Cruz	146
15.	Santa Barbara	129	15.	San Bernardino	133
16.	Watsonville	86	16.	Grass Valley	109
17.	Napa	78	17.	Watsonville	87
18.	Grass Valley	77	18.	Napa	73
19.	Salinas	60	19.	Salinas	53
	5 additional freeholders' charter cities reporting births for 1907 alone	801			
a.	Alameda	378			
b.	Long Beach	158			
c.	Riverside	105			
d.	Eureka	90			
e.	Santa Monica	70			

Berkeley, Sacramento, and Pasadena rose from rank 6, 7, and 8, respectively, in 1906, to 4, 5, and 6 in 1907, passing San José and Fresno. San Bernardino rose from fifteenth place in the ranking to eleventh, passing Santa Barbara, Vallejo, Santa Rosa, and Santa Cruz. At the same time Santa Cruz rose from fourteenth place to twelfth, passing Santa Barbara, Vallejo, and Santa Rosa. Watsonville and Napa rose from rank 17 and 18, respectively, in 1906, to 16 and 17 in 1907, passing Grass Valley.

It may be noted that the 12,654 births in the nineteen freeholders' charter cities in 1906 form 60.3 per cent of the 20,974 births registered in the whole State, and that the 14,985 births in these same cities in 1907 form 60.7 per cent of the 24,674 births registered in California. Including the five additional cities reporting births for 1907 alone, the twenty-four freeholders' charter cities reported 15,786 births, or 64.0 *per cent of the* State total.

VITAL STATISTICS FOR MAY.

Births.—The living births registered in May number 2,400, against 2,110 for April. For an estimated State population of 2,019,519 the May total represents an annual birth-rate of 14.0 as compared with 12.7 for April.

The May totals were highest for the following counties: San Francisco, 634; Los Angeles, 524; Alameda, 269; Santa Clara, 93; and Fresno, 85.

The births registered in the leading freeholders' charter cities for May were as follows: San Francisco, 634; Los Angeles, 364; Oakland, 149; Berkeley, 41; San José, 39; Pasadena, 34; San Diego, 31; Fresno, 30; Sacramento, 29; and Alameda, 26.

Marriages.—The marriages reported for May number 1,653, against 1,618 for April, and represent an annual rate of 9.7, as compared with 9.8 for the preceding month.

The May totals were greatest for the following counties: Los Angeles, 333; San Francisco, 307; Alameda, 208; Sacramento, 66; Fresno and Santa Clara, each 59; and Marin, 55.

Deaths.—Altogether, 2,554 deaths, exclusive of stillbirths, were reported for May, against 2,525 for April. The annual death-rate for May is 14.9, as compared with 15.3 for April.

The May death totals were highest for the following counties: San Francisco, 542; Los Angeles, 467; Alameda, 268; Santa Clara, 104; Sacramento, 93; San Joaquin, 81; Fresno and San Bernardino, each 80; Sonoma, 60; and San Diego, 52.

Deaths for May were reported as follows, for the leading cities: San Francisco, 542; Los Angeles, 296; Oakland, 141; Sacramento, 61; San Diego, 45; Berkeley, 41; Stockton, 39; San Jose, 35; Fresno, 28; and San Bernardino, 25.

Causes of Death.—In May there were altogether 398 deaths, or 15.6 per cent of all, from tuberculosis, and 387, or 15.2 per cent, from diseases of the circulatory system.

Other notable causes of death in May were: diseases of the nervous system, 259; violence, 258; diseases of the respiratory system, 240; diseases of the digestive system, 195; Bright's disease and nephritis, 142; cancer, 139; and epidemic diseases, 135.

The leading epidemic diseases in May were: typhoid fever, 45; whooping-cough, 24; diphtheria and croup, 20; measles, 15; scarlet fever, 12; and all others, 19.

Further details appear in the following table, which gives the number of deaths from certain principal causes reported for California in May, as well as the proportions from each cause per 1,000 total deaths for both May and April:

Cause of Death.	Deaths: May.	Proportion per 1,000.	
		May.	April.
ALL CAUSES	2,554	1,000.0	1,000.0
Typhoid fever	45	17.6	11.1
Malarial fever	8	3.1	1.2
Smallpox			0.8
Measles	15	5.9	3.6
Scarlet fever	12	4.7	5.9
Whooping-cough	24	9.4	6.3
Diphtheria and croup	20	7.8	13.1
Influenza	6	2.3	2.8
Other epidemic diseases	5	2.0	3.6
Tuberculosis of lungs	346	135.5	145.7
Tuberculosis of other organs	52	20.4	21.8
Cancer	139	54.4	61.4
Other general diseases	88	34.5	40.0
Meningitis	60	23.5	24.5
Other diseases of nervous system	199	77.9	81.6
Diseases of circulatory system	387	151.5	144.1
Pneumonia and broncho-pneumonia	188	73.6	84.4
Other diseases of respiratory system	52	20.4	25.4
Diarrhea and enteritis, under 2 years	59	23.1	15.8
Diarrhea and enteritis, 2 years and over	16	6.3	5.5
Other diseases of digestive system	120	47.0	45 9
Bright's disease and nephritis	142	55.6	64.6
Childbirth	33	12.9	14.3
Diseases of early infancy	105	41.1	30.9
Suicide	57	22.3	26.5
Other violence	201	78.7	63.8
All other causes	175	68.5	55.4

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases reported for May for the several geographic divisions of the State, including the metropolitan area, or "Greater San Francisco," in contrast with the rural counties north of Tehachapi:

Geographic Division.	DEATHS: MAY.									
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Violence	All Other Causes
THE STATE	2,554	135	398	139	259	387	240	195	258	543
Northern California	317	13	36	8	43	51	40	24	29	73
Coast counties	165	5	21	5	29	27	16	15	15	32
Interior counties	152	8	15	3	14	24	24	9	14	41
Central California	1,542	89	227	89	146	236	144	118	183	310
San Francisco	542	20	88	35	51	96	61	32	61	98
Other bay counties	367	21	49	27	23	54	31	32	57	73
Coast counties	191	9	27	9	23	32	16	13	20	42
Interior counties	442	39	63	18	49	54	36	41	45	97
Southern California	695	33	135	42	70	100	56	53	46	160
Los Angeles	467	29	97	32	44	64	37	35	32	106
Other counties	228	13	38	10	26	36	19	18	14	54
Northern and Central California	1,859	102	263	97	189	287	184	142	212	383
Metropolitan area	909	41	137	62	74	150	92	64	118	171
Rural counties	950	61	126	35	115	137	92	78	94	212

DEPARTMENT OF PURE FOODS AND DRUGS.

PROF. M. E. JAFFA, DIRECTOR.

FOOD AND DRUG INSPECTION.

This Department is just in receipt of some United States Food Inspection Decisions, Nos. 94 and 96, which appear to be of vital interest to the manufacturers and dealers of this State. These decisions are therefore reproduced, with the necessary references to the California law.

UNITED STATES FOOD INSPECTION DECISION 94.

THE LABELING OF MEDICINAL AND TABLE WATERS.

The Department has received many letters from various water manufacturers and mineral water dealers asking which waters it will be necessary to label as "artificial" or "imitation." It is thought that all manufactured waters should be labeled as either artificial or imitation, the choice of words being left to the manufacturer and applying to waters contrived by human art and not made in imitation of a natural water, as well as to those so contrived and made in imitation of a natural water. A water which is designated by some name alone, without any characterizing adjective to tell whether it is natural, imitation, or artificial, will be considered a natural water. It is suggested that the words "artificial" or "imitation" be in as large type as the name of the water in question, and on a uniform background.

All waters which, though natural in the beginning, have anything added to them or abstracted from them after they come from source, should either be labeled as "artificial" or should be so labeled as to indicate that certain constituents have been added to or extracted from them. It is suggested that the word "artificial" or the above explanation, as the case may be, should appear in as large type as the name of the water in question and on a uniform background.

The following examples are explanatory of the above principles: If lithia be added to a natural water, the water should either be labeled as "artificial lithia water," as "water artificially lithiated," or as "water treated with lithia." Again, if carbon dioxid be added to a natural water, whether the carbon dioxid be of the manufactured variety or collected from the spring itself, the water should either be labeled as "artificially carbonated water," "water artificially carbonated," "water treated with carbon dioxid," or "contains added carbon dioxid."

No water should be labeled as a natural water, unless it be in the same condition as at source, without additions or abstractions of any substance or substances.

No water should be labeled as "medicinal water" unless it contains one or more constituents in sufficient amounts to have a therapeutic effect from these constituents when a reasonable quantity of the water is consumed. No water should be named after a single constituent unless it contains such constituent in sufficient amounts to have a therapeutic effect when a reasonable amount of the water is consumed.

No manufactured water should bear upon the label any design or device that would lead the consumer to believe that the water is a natural one. Among such designs may be mentioned pictures of springs, fountains, woodland streams, etc.

No water should be characterized by a geographical name which gives a false or misleading idea in regard to the composition of said water. For example, it would not be correct to designate a water as "Lithia water" merely because the water came from Lithia, Fla., or Lithia, Mass.

Manufactured water may be named after a natural water in case the words "imitation" or "artificial" are used, but such manufactured waters must clearly resemble in chemical composition the natural waters after which they are named.

In accordance with Regulation 18 (California) no natural American spring water should be named after a foreign spring, unless the name of the foreign spring has become generic and indicative of the character of the water, except to indicate a type or style, and then only when so qualified that it could not be offered for sale under the name of the foreign spring. In these cases, the State or Territory where the spring is situated should be stated on the principal label.

Inasmuch as mineral waters are largely purchased because of their supposed freedom from contamination, any showing such contamination will be considered as adulterated and therefore in violation of the Food and Drugs Act.

UNITED STATES FOOD INSPECTION DECISION 96.

SERIAL NUMBER GUARANTY.

As a result of the numerous requests for specific information on various points connected with the filing of general guaranties with the Department, as well as on the use of serial numbers after they have been assigned, the following general instructions bearing on these questions are issued for the guidance of those interested:

(A) For information regarding the serial number guaranty, see Rules and Regulations for the Enforcement of the California Food and Drugs Acts, Regulation 8, and U. S. Food Inspection Decisions 40, 70, 72, and 83.

(B) Articles to be guaranteed may be referred to in the guaranty in the following ways:

(1) By name.

(2) By use of general terms. For example, proprietary medicines, extracts, carbonated waters, etc., using the proper terms to cover the line or lines sold.

(3) By stating in the space reserved for listing articles "all articles which are now or which may hereafter be manufactured, packed, distributed or sold by ———," in which case the serial number can be used on all foods or drugs, subject to the act, manufactured or owned and sold by the guarantor.

(C) The formulæ of preparations are not required to be given.

(D) The serial number guaranty should not be used on articles not entitled to bear such a guaranty. For example:

(1) Those of a character which are not included in the definition of articles within the purview of the act as given in section 2 of the California Pure Food Act, and section 2 of the California Pure Drug Act.

(2) Those subject to the meat inspection law, *i. e.*, meat and meat food products of domestic origin or manufacture derived from cattle, swine, sheep, and goats. (Imported meat and meat food products are subject to the food and drug act and may be guaranteed by means of a serial number or guaranty.)

(3) Those used in the arts and for technical purposes.

(E) A serial number assigned to a guaranty can be used on any article covered therein to which the act applies. (See B.)

(F) Products not covered by the guaranty on file at the Department can be added thereto by executing another guaranty covering them, to be filed as a supplement to the original instrument. (See B.)

(G) The serial number guaranty can be printed either directly on the principal label or appear on a supplemental label or paster attached to the goods.

(H) Only a resident of the United States can make a valid guaranty. (See Food Inspection Decision 62.)

(I) The general guaranty filed with the Department must be executed by the person, company, association, or corporation who assumes responsibility for the goods, or by his or its agents thereunto lawfully authorized, and the authority of such agent must plainly be made to appear when the guaranty is offered to be filed.

(J) Full information relative to the signing of the guaranty instrument appears at the bottom of the blank form of guaranty.

(K) The signature should be acknowledged before a notary public or other official authorized to administer an oath. The seal of such official should always be affixed to the document.

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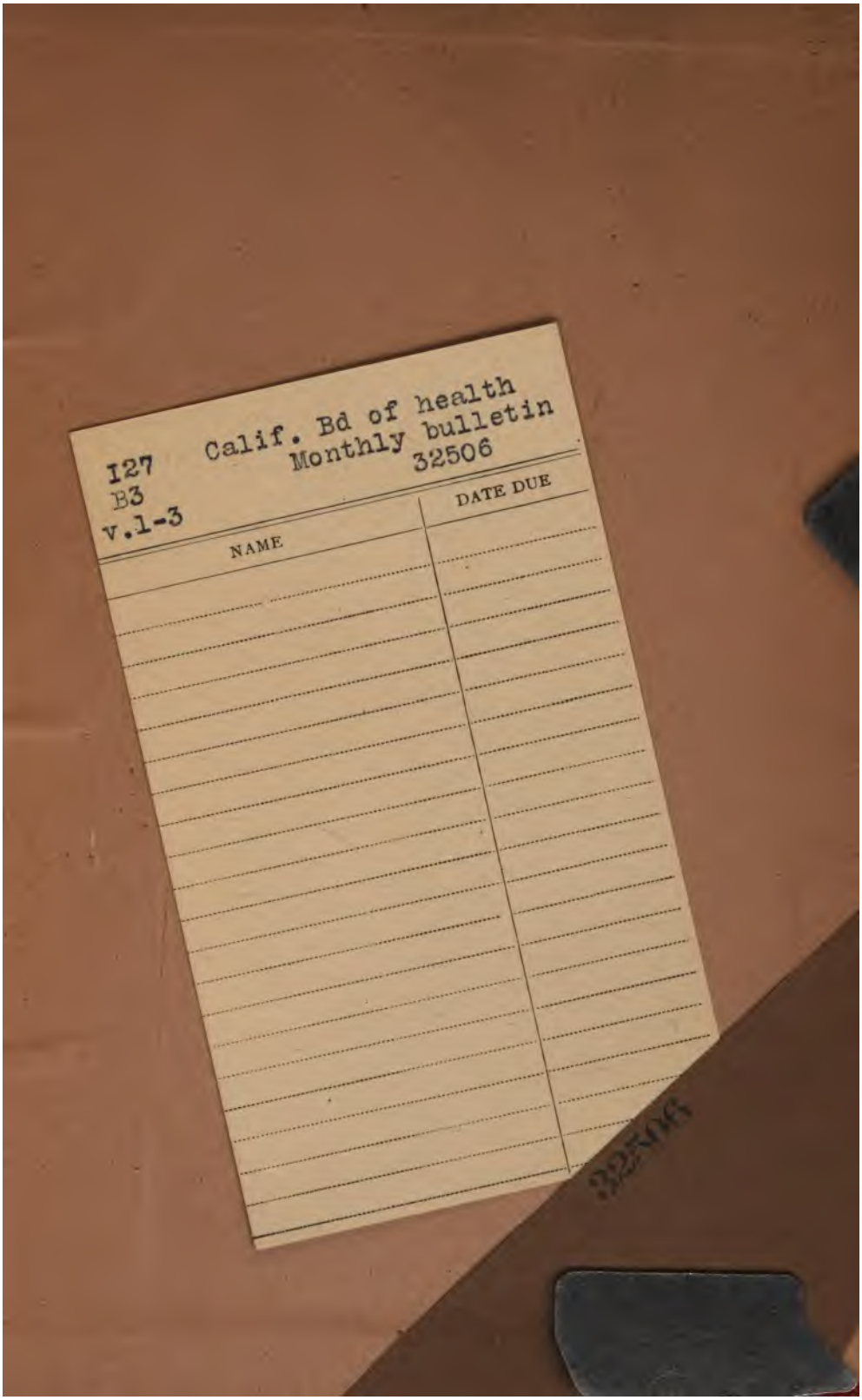
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